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United States
Department of Agriculture

Forest Service

Lolo
National Forest

February, 1986

The Lolo National Forest

Plan

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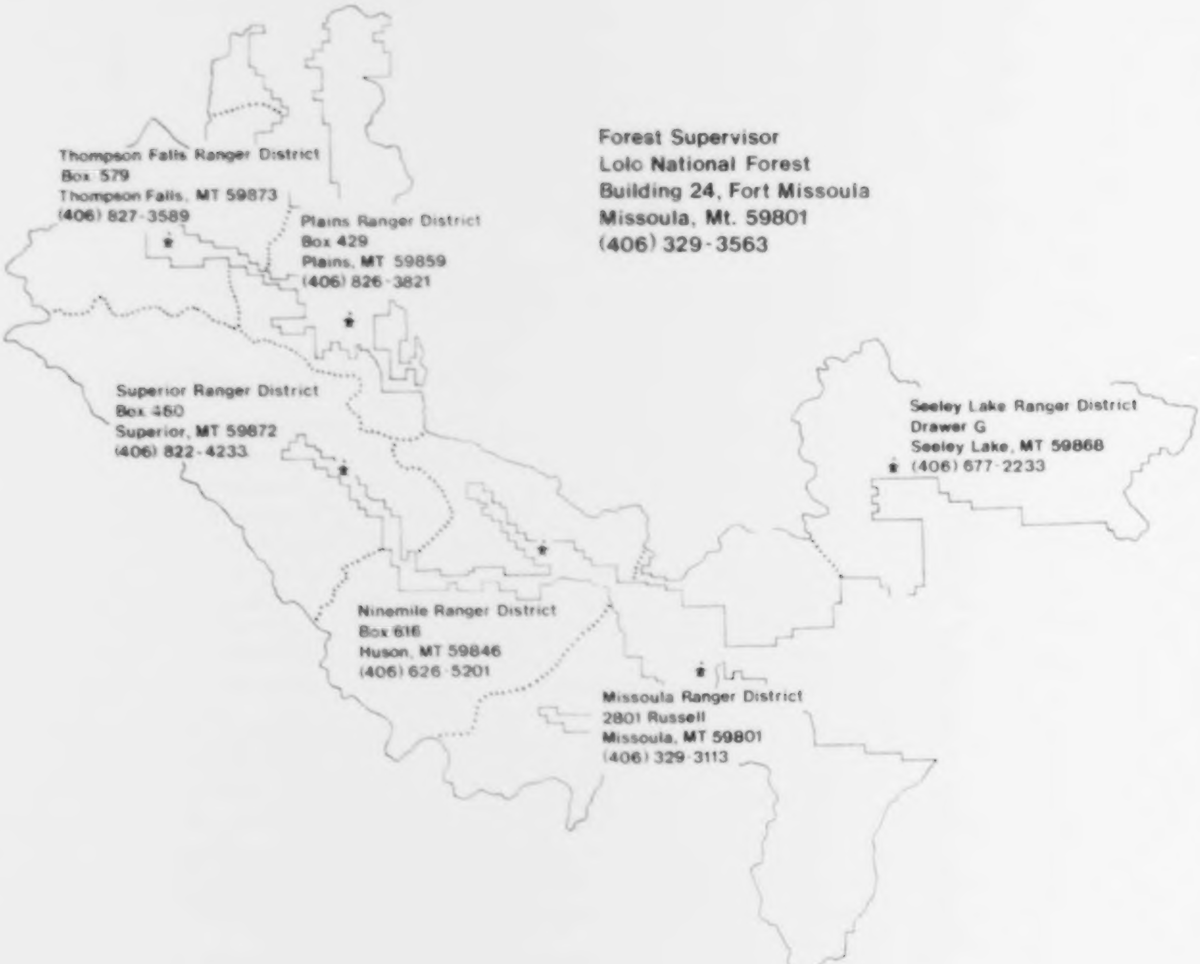
COVER: Lolo Peak, a prominent landmark just south of Missoula, towers above Lolo Creek at an elevation of 9,096 feet. The Lolo National Forest, which includes the original Lolo Forest Reserve established in 1906, is named after this mountain.

The Lolo National Forest Plan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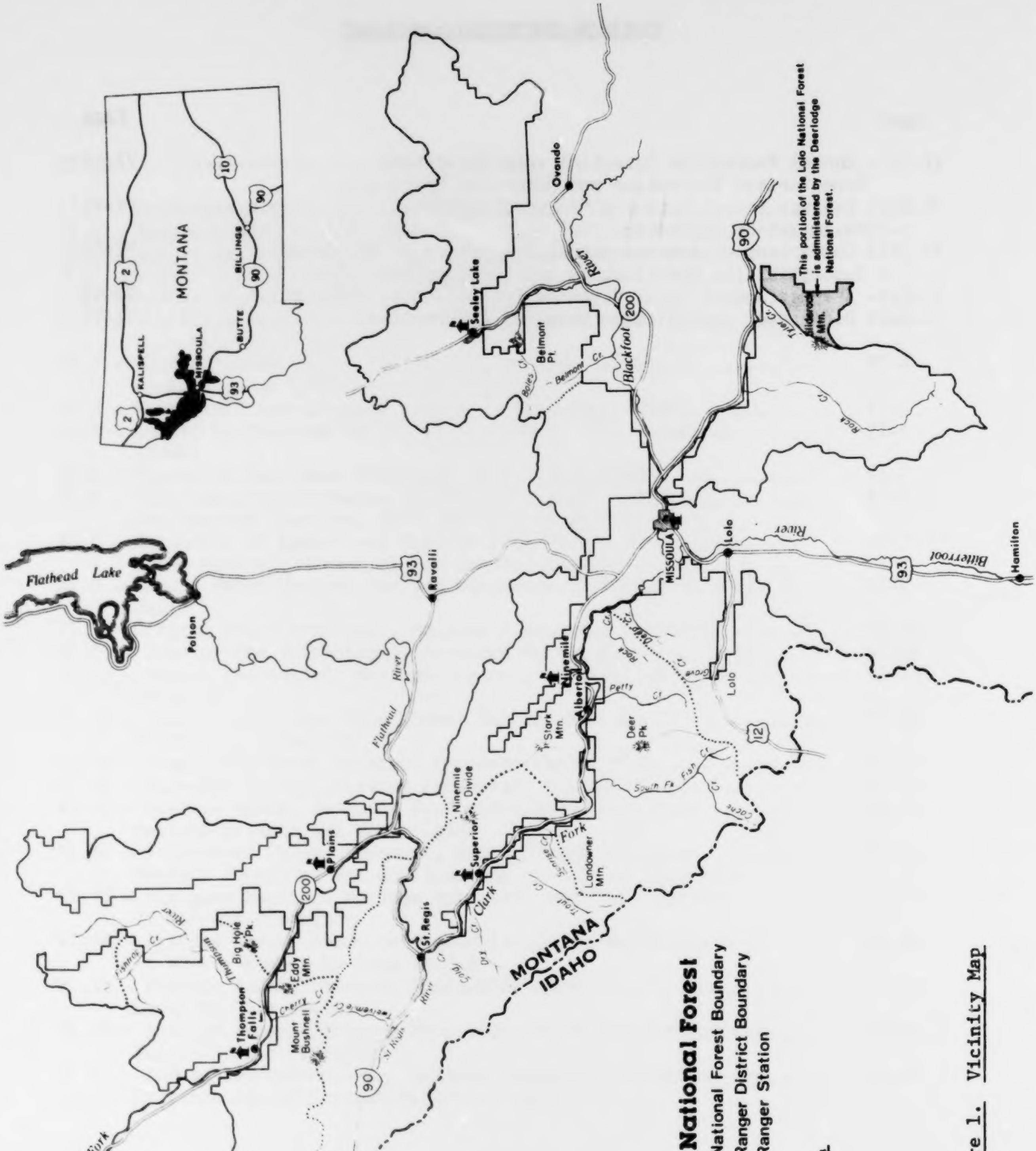
Lolo National Forest
National Forest Boundary
Ranger District Boundary
Ranger Station
North
MONTANA
IDAHO
Flathead Lake
Polson
Ravalli
93
Flathead River
Clark Fork
Thompson Falls
Thompson River
Fishtrap Cr
Big Hole Pk.
Eddy Mtn
Mount Bushnell
Cherry Cr
Twelvemile Cr
St Regis River
90
200
Plains
St. Regis
Superior
Ninemile Divide
Dry Cr
Trout Cr
Landowner Mtn
Stark Mtn
Ninemile
Alberton
Deer Pk
Petty Cr
Fish Cr
South Fk
Cache Cr
12
Lolo
Grave Cr
Rock Cr
Deep Cr
MISSOULA
Bitterroot River
Hamilton
Seeley Lake
Belmont Pt.
Belmont Cr
Boles Cr
Blackfoot River
Ovando
Rock Cr
Tyler Cr
Gilderoy Mtn.
This portion of the Lolo National Forest is administered by the Deerlodge National Forest.
MONTANA
KALISPELL
MISSOULA
BUTTE
BILLINGS
2
10

Figure 1. Vicinity Map

Preface

The Forest Plan is in compliance with the National Forest Managment Act of 1976 (NFMA); the regulations for National Forest Land and Resource Management Planning (36 CFR Part 219); and the National Environmental Policy Act of 1969 (NEPA), including the Record of Decision for the Environmental Impact Statement covering the Forest Plan.

Further information about the Forest Plan can be obtained by writing Forest Supervisor, Lolo National Forest, Building 24, Fort Missoula, Missoula, Montana 59801. The Forest telephone number is (406) 329-3880.

I. Introduction

A. Purpose

The Forest Plan guides all natural resource management activities and establishes management standards for the Lolo National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

B. Management Direction

The goals, objectives, standards, schedule of management practices, and monitoring and evaluation requirements comprise the Plan's management direction. However, the projected outputs, services, and rates of implementation are dependent on the annual budgeting process.

C. Relationship to Other Documents

Environmental Impact Statement:

The Forest Plan is based on the various considerations which have been addressed in the accompanying Environmental Impact Statement (EIS) and represents the proposed action in that EIS. The planning process and the analysis procedure used in developing this Plan, as well as other alternatives that were considered, are described or referenced in the EIS. Project level activities will be planned and implemented to carry out the managment direction in this Plan. The NEPA requirements will be followed as the site specific issues and impacts are addressed during project development.

Regional Guide:

The Regional Guide displays the Northern Region's portion of the Forest and Rangeland Renewable Resources Planning Act (RPA) Program among the National Forests, provides direction for National Forest plans, and develops standards and guidelines for addressing major issues and management concerns which need to be considered at the Regional level to facilitate Forest Planning. The Regional Guide process allows for discussion and analysis of National Forest program capabilities to determine opportunities to meet short- and long-term natural resource demands.

II. Forest-wide Management Direction

A. Goals

1. Provide a sustained yield of timber and other outputs at a level that will help support the economic structure of local communities and provide for regional and national needs.

2. Provide habitat for viable populations of all indigenous wildlife species and for increasing populations of big-game animals.

3. Provide for a broad spectrum of dispersed recreation involving sufficient acreage to maintain a low user density compatible with public expectations.

4. Provide a pleasing and healthy environment, including clear air, clean water, and diverse ecosystems.

5. Emphasize conservation of energy resources.

6. Encourage a "Good Host" concept when dealing with the public.

7. For threatened and endangered species occurring on the Forest, including the grizzly bear, gray wolf, peregrine falcon, and bald eagle, manage to contribute to the recovery of each species to nonthreatened status.

8. Meet or exceed State water quality standards.

B. Objectives

1. Resource/Activity Summaries

Following are brief summaries of how the various resources and activities will be managed under the Forest Plan. A complete understanding of the management direction can be attained by reading the Forest-wide goals and standards in this chapter and the management area goals and standards in Chapter III.

Lolo National Forest management under this Forest Plan does not create abrupt changes or sudden shifts from current direction. People can expect similar levels of goods and services from the Forest, and minimal changes in land use patterns. Approximately 25 percent of the Forest will remain in a roadless condition, managed as designated Wilderness or for its roadless values. The rich variety of recreation experiences available on the Forest will continue.

The timber program approximates the annual average volume offered for the past ten years; it is designed to accommodate fluctuations in the market and meet the needs of local mills within the decade's allowable sale-quantity.

Roads will be kept to the minimum number and size needed to support resource management; most roads will be closed when projects are completed to protect resource values.

This Forest Plan improves the environmental quality of the Forest over current direction through strong Forest goals, Forest-wide standards, Management Area standards and direction, and an extensive, affordable Monitoring Program that emphasizes protection of water quality and soils, enhancement of wildlife and fish habitats, and the integration of visual quality objectives.

The Plan provides for the recovery of threatened species on the Forest. It regulates human access and use in and through occupied grizzly bear habitat. In addition, tools such as prescribed burning, will be used to enhance food-producing areas and improve habitat. The Plan supports expansions in populations of the endangered peregrine falcon, bald eagle, and gray wolf through Forest goals and standards.

Management is designed to increase the Forest's nationally significant big-game populations, particularly elk. Elk habitat productivity and elk numbers are projected to increase by 25 percent over current levels.

The Forest Plan provides habitat for viable populations of the diverse wildlife and fish species on the Forest, with special attention given to species dependent on snags, old growth areas, and riparian zones.

At the present time, approximately 80 percent of the Forest has a relatively natural appearance. Resource management activities are significantly constrained by visual quality objectives in areas adjacent to or readily visible from major highways, roads, trails, campgrounds, and other recreational developments. Other parts of the Forest where visual quality objectives constrain resource management activities are identified; the Forest Plan continues management that insures those natural-appearing landscapes.

Overall, the Forest Plan provides for the maintenance of a diverse mosaic of vegetational development, well distributed across the Forest to insure ecological integrity.

2. Projected Outputs and Activities by Time Periods

Table II.1 displays the planned outputs and activities for the first decade and the projected outputs and activities for decades 2 to 5. The planned budget required to implement the Forest PLan is shown in Appendix D.

Appendix C contains activity schedules for various resources and activities. Projects will be added to these activity schedules periodically as they are identified during the continuous planning process; projects may also be deferred or modified if problems are identified during project level environmental analysis (refer to Chapter V, Section C for a discussion of project planning).

3. Research Natural Area Objectives

The Regional habitat types listed in Table II.2 have been assigned by the Northern Regional Guide as the Forest's objectives for Research Natural Area recommendations. The table also lists a candidate area (or areas) representative of each assignment type. Establishment reports will be prepared for each area.

Table II.1 - Projected Outputs and Activities by Time Period

			Average Annual Units				
			Planned	Projected			
Target Item	Output or Activity	Unit of Measure	1986-1995	1996-2005	2006-2015	2016-2025	2026-2035
Recreation							
T01	Developed Use	M RVD	353	393	375	386	405
T02	Dispersed Use						
	Wilderness	M RVD	17	18	20	21	22
	Non-wilderness	M RVD	1137	1266	1354	1493	1514
Wildlife & Fish							
T03	Wildlife Hab Imp	Acres	1600	1600	1600	1600	1600
T04	Fish Habitat Imp	Acres	42	0	0	0	0
T05	T&E Habitat Imp	Acres	80	62	0	0	0
Range							
T06	Permitted Graz Use	M AUM	14	14	14	14	14
T07	Range Improvement	Acres	485	485	485	485	485
T08	Range Res Plans (Allot Mgt Plans)	Plans	3	1	1	1	1
T09	Noxious Weed Control	Acres	2185	15000	700	200	200
Soil							
T10	Soil Inventory	M Ac.	80	0	0	0	0
Lands							
T11	Land Exchange	Acres	4193	50	0	0	0
Minerals							
T12	Minerals Mgt	Cases	165	180	185	190	195
Timber							
T13	Tot Reg Vol Offered	MM BF	107	131	131	131	131
T15	Silv Exams	M Ac.	62	63	102	52	58
T16-17	Reforest- Approp	Acres	3538	2100	1800	1740	3173
T18-19	Reforest- K-V	Acres	5308	8400	7202	6960	12693
T20	Tbr Std Imp- Approp	Acres	773	0	0	0	0
T21	Tbr Std Imp- K-V	Acres	0	773	773	819	819
T22	Landline Location	Miles	55	55	55	55	55
T44	Fuels Mgt-BD	Acres	6509	10235	10415	13924	14296
Protection							
T23	Fuels Mgt-FFP	Acres	2435	2453	2515	2515	2515
Facilities							
T81-82	Road Const/Reconst-						
	Arterial	Miles	0	0	0	0	0
	Collector	Miles	119	89	70	70	70
	Local	Miles	118	174	166	183	67
T83	Trail Const/Reconst	Miles	26	26	26	26	26

Table II.2 - Research Natural Area(RNA) Objectives, Lolo National Forest

Habitat Type Code Forested Types	Forest Habitat Type or Description	Occurrence	Proposed RNA
010	Scree	M	Squaw Creek
250	Psme/Vaca	M	Petty Creek
260	Psme/Phma	M	Plant Creek, Petty Creek
280	Psme/Vagl	M	Pyramid Peak
290	Psme/Libo	M	Plant Creek, Petty Creek
310	Psme/Syal	M	Petty Creek
330	Psme/Cage	m	Sheep Mt. Bog, Pyramid Peak
340	Psme/Spbe	m	Petty Creek
440	Picea/Gatr	m	Plant Creek
590	Abgr/Libo	m	Petty Creek
670	Abla/Mefe	M	Carlton Ridge
680	Tsme/Mefe	m	Barktable Ridge
690	Abla/Xete	M	Carlton Ridge, Pyramid Peak
710	Tsme/Xete	m	Barktable Ridge
830	Abla/Luhi	M	Carlton Ridge, Sheep Mtn. Bog
860	Laly/Abla	m	Carlton Ridge
	Cottonwood (Populus spp)	M	Council Grove
Nonforested Types			
	Fied/Deca	m	
	Deca/Carex	m	
Aquatic Type			
	Type I Streams		Plant Creek
	Type II Streams		Plant Creek
	Temporary Ponds		
	Low Production Potential Lake		
	Bog Ponds		Sheep Mtn. Bog
	Wet Meadows		Pyramid Peak

Note: Occurrence

M = Major representative in zone.
m = Minor representative in zone.

4. Additional Data Requirements and Accomplishment Schedule

Table II.3 identifies additional requirements that are needed to improve the Forest's data base, revise current data base inventories to new standards, and to incorporate new data base requirements that have recently been identified.

Table II.3 - Additional Data Requirements and Accomplishment Schedule

Data Requirement	Data Level	Accomplishment Schedule
Lands System Inventory and Order III Soils Surveys	Regional Standard	1987
Stream & Lake Habitat Surveys including Channel Condition Survey	Interagency Stream and Lake Survey Standard	Completed
Riparian Zone Delineation	National Standard	1988
Visual Absorption Capacity	Similar to Forest Service-wide Direction 2383.2	1995
Water Resource Inventory	Forest Service Direction in FSM 2531	1990
Watershed Improvement Needs Inventory	WO Direction Memo's, 2/25/80 and 7/28/80	Backlog Completed
Conversion to Recreation Opportunity Spectrum (From ROI currently in use on the Lolo National Forest)	As in General Technical Report PNW=98	1986
Site Specific Stand Age Class and Condition Inventory on Areas Allocated to MA 21.	Similar to walk-through stand exam data with special emphasis on fuel loading and disease	1992

C. Research Needs

The following research needs have been identified during development of this Forest Plan; they will be evaluated by the Regional Forester for inclusion in the Regional research program proposal. It is anticipated that the research needs will become apparent during monitoring and evaluation of the Forest Plan as it is implemented.

1. How different management activities interrelate with soil characteristics to cause compaction and how compaction affects vegetative productivity.

2. The determination of baseline land productivity and how land management activities influence this productivity.

3. Determine the relationship of types and levels of instream sediment to fish habitat productivity potential, and the importance of fish habitat on the Forest to downstream waters.

4. Determine the climatic factors that influence regeneration success on lands currently considered physically unsuitable for timber management.

5. Determine the need for stocking level control of regenerated timber stands to meet the timber volume (quantity and size) outputs forcast in the Lolo Forest Plan.

6. Determine the autecology of the noxious weeds: spotted knapweed, diffuse knapweed, leafy spurge, goatweed, dalmation toadflax, common toadflax, hounds tongue, common tansy, caprina, musk thistle, star thistle, canadian thistle and dyerswoad. Develop and evaluate probable biological control methods for these weeds.

D. Desired Future Condition of the Forest

This section describes what the future Forest should be like if the management direction contained in the Forest Plan is implemented. It summarizes the anticipated physical changes which would result from carrying out planned management practices, at two points in time: at the end of the Plan period and at the end of 50 years (RPA planning horizon).

1. The Forest in 1995

At the end of the first decade, there will have been minimal change in the overall appearance of the Forest. Timber harvests may have taken place on 171,000 acres at an average annual level of 107 million board feet of regulated harvest and an estimated 15 million board feet of unregulated harvests. Reforestation will have been accomplished on 88,460 acres through planting and natural regeneration with all of the existing nonstocked commercial forest land reforested. The timber harvest and subsequent reforestation will change the age classes of the Forest timber types by adding approximately 90,000 acres to the seedling sapling component and decreasing an equivalent amount from the mature age class. Timber stand improvement will have been applied to 7,730 acres.

As a result of elk habitat improvements such as burning to increase forage and the coordination of timber sale programs, elk winter range will have been improved providing the opportunity for increase in herd size. Burning will have occurred on 16,000 acres of identified winter range and 65,090 acres of timber land which includes some winter range. Effects on big-game summer range will have been minor as a result of meeting specific management objectives (i.e., road closures) on key areas and the large amount of roadless areas still available.

There will be sufficient old-growth habitat available to meet the needs of old-growth dependent wildlife.

Habitat to support threatened and endangered species will have been protected consistent with recovery goals.

Fisheries on the Forest will have improved slightly; fish habitat improvement will have occurred on 460 acre-equivalents.

Forest soil productivity will have been maintained.

The current grazing program will have been maintained and the opportunity to increase animal numbers provided as a result of increases in the transitory range created through timber harvest.

Recreation will have been provided that allowed for all types in the Recreation Opportunity Spectrum. Developed recreation will have been maintained at the current levels. Capacity for dispersed recreation will exceed the projected use for primitive/semiprivitive recreation and roaded natural recreation. Approximately 223,600 acres of the roadless resource will have been proposed for wilderness, with an additional 181,000 acres to remain roadless.

2. The Forest in 2035

By the end of the fifth decade, many changes will be apparent in the overall condition of the Forest.

Timber will have been harvested on 948,000 acres with an annual program of 131 million board feet of regulated harvest and an estimated 15 million board feet of unregulated harvests. There will have been a change in the Forest-wide distribution of the mature age classes (from 45 to 24 percent) and an increase in the immature age classes (from 55 to 76 percent) on the suitable timber lands.

Reforestation will have been accomplished on 528,000 acres through planting and natural regeneration. The reforestation program will have kept up with the harvest program. Timber stand improvement will have been applied to 39,570 acres.

As a result of elk habitat improvement programs, such as burning potential forage areas, and the coordination of timber sale programs, elk winter range will have been improved to allow for a 25 percent increase in herd size. Burning will have occurred on 80,000 acres of identified winter range and 553,790 acres of timber land which includes some winter range. Sufficient capacity would still exist to support the increase in the elk herd as timber stands matured.

Old-growth habitat will still exist to meet the needs of old-growth dependent wildlife.

Sufficient habitat will exist for threatened and endangered species to meet the objectives of the recovery plans. Factors limiting recovery will have been eliminated where possible.

Fisheries on the Forest will have improved. Fish habitat improvements accomplished during the first decade will have had a maintenance program that protected the improvements.

Forest soil productivity will have been maintained.

The grazing program will have been maintained as a result of the transitory range created through timber harvest.

Recreation will have been provided that includes all types in the Recreation Opportunity Spectrum. The demand for developed recreation will have reached the capacity of the developed sites. A substantial number of the developed sites will have been reconstructed resulting in a slight increase in capacity. Capacity for dispersed recreation will still exceed the projected use for primitive/semiprimitive recreation and roaded natural recreation. Essentially all of the 371,590 acres of the roadless area available for development will have been developed; the roadless areas remaining will be the 363,308 acres of wilderness and the 181,000 acres managed for roadless.

E. Standards

The following Forest-wide standards apply to the National Forest System land that is administered by the Lolo National Forest. They are intended to supplement, not replace, the National and Regional policies, standards, and guidelines found in Forest Service Manuals, Handbooks, and the Northern Regional Guide. The term "road closure" is used in this plan to refer to a broad range of prohibitions and restrictions. Such impositions may be year-long or seasonal and apply to all vehicles or only certain vehicles. These "closures" will be applied for economy, safety, fire protection, or protection of natural resources.

1. As soon as practicable, and subject to valid existing rights, all outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of lands of the Lolo National Forest will be made consistent with the Forest Plan.

2. Subsequent activities affecting the Forest, including budget proposals, shall be based on the Forest plan. Proposed implementation schedules may be changed to reflect differences between proposed annual budgets and appropriated funds. Such scheduled changes shall be considered an ammendment to the Forest Plan, but shall not be considered a significant amendment, or require the preparation of an environmental inpact statement, unless the changes significantly alter the long-term relationship between levels of multiple use goods and services projected under actual appropriations.

3. If it is determined during project design that the best way to meet the goals of the Forest Plan conflicts with a Forest Plan standard, the Forest Supervisor may approve an exception to that standard for that project; such exceptions must be described in the Finding of No Significant Impact/Decision Notice for the project, and the rationale for making the exception must be documented in the project's Project File or Environmental Assessment.

Range:

4. Conflicts between livestock and big game will be resolved so big game are allocated the forage required to meet their needs. Domestic livestock will be allowed to utilize any forage surplus not conflicting with the planned expansion of big-game populations. Reductions in livestock numbers will be avoided if possible, but will be acceptable to meet management goals.

5. Allotments with no AUM's shown for the Proposed Action in Appendix B will be phased out unless the permittee is willing to make necessary investments in livestock management and structural improvement to maintain range condition at an acceptable level.

Recreation:

6. The Lolo National Forest will provide for a wide spectrum of Forest-related dispersed recreation activities and range of skill levels available to Forest visitors including the elderly and handicapped. The program will provide for use of the Forest on a year-round basis in areas that will minimize conflicts between user groups and other Forest resources.

   The following items will be emphasized on the Forest to increase communication and service to the public:

   a. Establish a Missoula information center to make public information service more convenient for the public;

   b. Increase public contacts in the field;

   c. Increase information service at each Ranger Station and the Supervisor's Office;

   d. Emphasize the "Service" concept through employee training;

   e. Continue developement and increase availability of the Recreation Opportunity Guide;

   f. Inform public of Forest activities through use of the media;

   g. Develop Forest sign plan responsive to public needs;

   h. Improve appearance of facilities, vehicles, and work areas;

   i. Revise format of Travel Plan to make it more understandable;

   j. In partnership with the Clearwater National Forest, operate and maintain the Lolo Pass visitor center;

   k. Develop the Ninemile Remount Station Visitor Center;

l. Redesign major facilities to accommodate the elderly and handicapped persons;

m. Provide recreation opportunities such as trails on National Forest land adjacent to private resorts;

n. Modify timber sale contracts to avoid disturbance to Forest visitors during key periods;

o. Increase frequency of road maintenance on popular recreation routes;

p. Develop environmental education facilities and programs;

q. Nominate Forest trails as National Recreation Trails when they meet the criteria contained in the National Trails System Act of October 2, 1968, (PL 90-543).

7. The Forest Service will not significantly expand the capacity of developed recreation sites on the Lolo National Forest during the next 10-year period. Emphasis will be placed on increasing the use of existing sites by making them usable by a wide segment of society including the elderly and handicapped. Those existing sites receiving low levels of public use or which are not cost effective to operate will be considered for temporary or permanent closure. The private sector and other agencies will be encouraged to provide for increased public needs on National Forest System land and on lands adjacent to the Forest. If and when development proposals are received for expansion of existing or construction of new ski areas, they will be evaluated according to the normal procedures for determining ski area feasibility. The Forest will use the Analysis Procedure for Prioritizing Recreation Projects on the Lolo National Forest (Appendix K) to determine funding for recommended recreation projects.

8. Provide for quality 1/ hunting and fishing opportunities on the Forest by means of habitat manipulation, transportation management and planning, and by coordinating and cooperating with the Department of Fish, Wildlife, and Parks to provide for a wide diversity of hunting and fishing opportunities.

   1/ "Quality" includes factors contributing to success in harvesting an animal, numbers of persons engaged in the same activity in the same area at the same time,and general appearance of the area in which the activity is done.

9. Provide quality 2/ opportunities for Forest users to enjoy land- and water-related animals by means of: Providing security areas for animals in parts of the Forest where people gather in reasonable numbers; informing the public through the Recreation Opportunity Guide about opportunities for bird watching, wildlife photography, and other enjoyment opportunities, expanding the Forest's system of interpretive nature trails.

   2/ "Quality" includes factors contributing to success in viewing, hearing, photographing an animal; numbers of persons engaged in enjoyment activities in the same area at the same time; general appearance of the area in which the activity is done; the chance to see/experience an unusual or unique animal specimen.

Timber:

10. Regional standards will be followed for tree utilization, management intensity, measurement, growth suitability for timber production, tree openings, and silvicultural systems.

11. An economic analysis will be completed for a) timber sales larger than 1 MMBF and b) transportation systems for unroaded areas where timber harvest is scheduled. The project will be analyzed, and a decision made whether to continue, considering the net public benefit and/or probable marketability at each of the following stages of project planning:

    a. prior to being included in the Timber Sale Program;
    b. during project planning and designl;
    c. before advertisement of the project.

12. The guidelines in Appendix G will be used for selecting timber harvest systems during timber sale preparation.

13. Increase the use of the available wood fiber consistent with management objectives and economic principles. Sufficient amounts of woody material will be left to maintain soil fertility. Management emphasis items for tools to accomplishing increased use include:

    a. Transportation planning including road management will be done to enhance timber salvage and firewood removal opportunities.

    b. Increased utilization will be encouraged.

    c. Favor lump sum sales over scaled sales.

    d. Improve information services to inform public and private sectors of the various uses for wood fiber and its availability.

    e. Harvested stands will be regenerated using techniques that encourage natural regeneration.

    f. Regenerated stands will undergo stocking level control when:

        (1) Necessary to meet resource management goals such as wildlife and visual;

        (2) Necessary to obtain future stand yields as projected in the Forest Plan yield tables. Thinning activities generally will only be undertaken when an economic analysis shows positive value increase. However, some thinning will occur where an analysis does not show a positive increase but is needed to meet future timber outputs projected in the Forest Plan. In these cases an economic evaluation will be used to determine the highest priority stands for treatment;

(3) Necessary to protect stands from fire, insects, or disease where the lands are classified as suitable for timber production.

Water and Soils:

14. The following hierarchial approach will be used to achieve watershed protection on lands with intermingled ownership:

    a. Cooperative. Accelerate efforts to develop mutually agreeable water quality and quantity management standards with other landowners practicing forest management in areas of intermingled ownership. Seek cooperative agreements with these landowners on the shared responsibilities for achieving or maintaining the standards.

    b. Buffering. This approach is to defer or delay activities on National Forest System land that could cause stream channel damage when coupled with activities that have taken place or are in progress on intermingled lands of other ownership. This approach will be used only as an interim action during watershed reparation. If reasonable solutions cannot be achieved within 3 years, approaches (c) and (d) may be used.

    c. Land Acquisition. This will be considered only for small or isolated parcels of land in areas where watershed protection could be better achieved if lands were in a single ownership. Acquisition could be through purchase or land exchange.

    d. Legal Action. The Forest will support existing State or Federal laws for watershed protection by involving responsible enforcement agencies as necessary and by supporting legislation aimed at strengthening watershed protection (e.g., Forest Practices Act).

15. The application of best management practices will assure that water quality is maintained at a level that is adequate for the protection and use of the National Forest and that meets or exceeds Federal and State standards.

16. Developmental projects in areas with steep slopes, granitic soils, wet glacial tills, and lake sediments will not be scheduled until they have been analyzed for environmental effects and economic feasibility.

17. A watershed cumulative effects analysis will be made of all projects involving significant vegetation removal prior to these projects being scheduled for implementation. These analyses will also identify existing opportunities to mitigate adverse effects on water-related beneficial uses, including capital investments for fish habitat or watershed improvement.

18. All management practices will be designed or modified as necessary to maintain land productivity.

19. Human-caused increases in water yields will be limited so that channel damage will not occur as a result of land management activities.

20. Instream flow requirements for the Lolo National Forest will be determined using procedures developed by the Regional Office. The Forest will meet the deadline set by the State of Montana for filing to protect our water rights that were established prior to 1973. The priority for obtaining in-stream flow rights is contained in Appendix Q.

Wildlife and Fish:

21. Wildlife features such as wallows, mineral licks, and seeps will be protected by employing the following standards, which are subject to change over time, but which reflect the current state of knowledge.

    Within 5 chains (330 feet) of actively used or recently used wallows, licks, seeps, etc., cover status should be maintained with no more than a 30 percent reduction in existing or normal tree canopy. For an additional 3 chains (198 feet) around the feature, tree canopy removal should be limited to 50 percent. The feature should not be isolated within a larger clearcut unit. Cutting unit boundaries should be adjusted so that the feature is contiguous to forested cover. Skidding equipment should not be permitted within 2 chains of the feature and logging debris should be removed from all trails leading to the feature. It should be recognized that timber management may be necessary in or near such features to maintain the associated values. Harvest entries should be spaced at least 20 years apart and made to improve or maintain the feature. When departure from the above is deemed necessary, interdisciplinary involvement with a wildlife biologist will be required to help develop treatment prescriptions.

22. The Forest wildlife biologist will examine and recommend vegetative objectives for managing and protecting all winter range whenever activity is proposed within it.

23. The document "Coordinating Elk and Timber Management" (Final Report of the Montana Cooperative Elk-Logging Study, 1970-1985) which summarizes the results of 15 years of interagency elk/logging research, will be used as a basic tool for assessing the affects of timber harvest upon elk habitat, and for making decisions that effect the overall big-game resource.

    When considering activities in lands with intermingled ownership, the effects of activities by all landowners on the big-game resource will be analyzed. Efforts will be made to develop mutually acceptable project designs with other landowners that minimize impacts on wildlife. In some cases, activities on National Forest System land will be deferred or redesigned to mitigate effects of private land management practices.

24. All threatened and endangered species occurring on the Lolo including the grizzly bear, bald eagle, peregrine falcon, and gray wolf will be managed for recovery to nonthreatened status. Forest Service designated essential habitat will provide interim management direction for those species until critical habitat is designated by the Fish and Wildlife Service. Within essential grizzly bear habitat (Management Situation 1), the Forest wildlife biologist will establish vegetative management

objectives for all projects that involve vegetative manipulation. Outside of Management Situation 1, where grizzly bear use is suspected or known to occur on an occasional basis (Management Situation 2), schedule activities so as to not conflict with the grizzly bear. If departures from this standard are deemed necessary, the Forest wildlife biologist will assist in developing treatment alternatives. (Management Situations 1 and 2 are defined by the Interagency Grizzly Bear Guidelines.)

25. In the portion of the Forest more than 200 feet from all system roads, sufficient snags and dead material will be provided to maintain 80 percent of the population of snag-using species normally found in an unmanaged Forest. (See Appendix N, Procedures to Implement the Forest Snag Standard.)

26. Provide a variety of hunting recreation opportunities by using project planning and road management to assist the Montana Department of Fish, Wildlife, and Parks in meeting their goal of maintaining long hunting seasons with minimum restrictions.

27. Management practices in essential habitat of threatened and endangered species must be compatible with habitat needs of the species (grizzly bear, gray wolf, bald eagle, and peregrine falcon) consistent with the goal of recovery to nonthreatened status. There are no other known plant or animal species on the Forest that have been identified as threatened or endangered under provisions of the Endangered Species Act of 1973. If and when such habitats are identified, appropriate measures, pursuant to Section 7 of the Endangered Species Act, will be taken to protect the species and its habitat consistent with National goals for species recovery to nonthreatened status. Cooperate with future interagency efforts to recover those species for which recovery goals have not yet been defined. For plant and animal species that are not threatened or endangered, but where viability is a concern (i.e., sensitive species), manage to maintain population viability. Habitat for management indicator species, which include the elk, goshawk, and pileated woodpecker, will be monitored. Elk population data, collected by the Department of Fish, Wildlife, and Parks will be compared against habitat data to test elk/habitat relationships. As monitoring technology becomes available for the goshawk and pileated woodpecker, population trends will be monitored. In the interim, habitat parameters including old-growth acres and condition, and snag densities will be monitored as an indicator of population trend.

28. Land management practices shall be designed to have a minimum impact on the aquatic ecosystem, free from permanent or long-term unnatural imposed stress. (A long-term stress is defined as a downward trend of indicators such as aquatic insect density or diversity, fish populations, intragravel sediment accumulations, or channel structure changes that continue for more than 1 hydrologic year as determined by procedures outlined in the Forest Plan Monitoring Requirements.) Project level assessments will address the potential impacts of management activities on off-Forest aquatic resources by considering and evaluating downstream data wherever available.

Lands:

29. Criteria specified in Appendix H will be used to evaluate existing and proposed withdrawals along with the initial screening of existing withdrawals.

30. Special-use permits may be issued if they meet the guidelines listed in Appendix J.

31. Guidelines for development of a Forest landownership adjustment program and the proposed program are in Appendix I. In addition, the Forest may accept donations of fee or partial interests in land within or adjacent to its boundaries when proposed donation will complement National Forest management.

32. Power line and pipe line corridor locations will be responsive to socially defined resource values such as visual quality, recreation, economics, land use, and the traditional image of the landscape. Except as they cannot be mitigated, biological and physical impacts will be subordinate to consideration of social fctors. The consideration of a corridor's influence on the maintenance of outputs will be subordinate to the above considerations. Locations will be in existing transportation and/or utility corridors when feasible. Utility and transportation corridor designation on the Forest follows procedures established by the Regional Forester and is displayed in the following table. Coordination and review will be in accordance with the State of Montana-Forest Service-BLM Corridor Oversite Review Committee charter.

Mgt. Area No.	Planning Designation	Mgt. Area No.	Planning Designation	Mgt. Area No.	Planning Designation
1	Avoidance	10	Avoidance	19	Avoidance
2	Avoidance	11	Avoidance*	20	Avoidance
3	Avoidance	12	Exclusion	21	Avoidance
4	Window	13	Avoidance	22	Avoidance
5	Window	14	Avoidance	23	Window
6	Avoidance	15	Window	24	Avoidance
7	Avoidance	16	Window	25	Window
8	Avoidance	17	Window	26	Window
9	Avoidance	18	Window	27	Window
				28	Avoidance

* Management Area 11 in Rock Creek is classified an an exclusion area.

Minerals:

33. Areas currently withdrawn from mineral entry will be evaluated in accordance with the provisions of Section 204 of the Federal Land Policy and Management Act (FLPMA) of 1976 to determine whether the withdrawal is still necessary.

34. Congressionally designated wilderness areas on the Lolo National Forest are withdrawn from mineral entry and leasing. No new mining claims may

be located nor may any mineral leases be issued in these areas. Valid existing rights established prior to the withdrawal date will be recognized, subject to stipulations insuring compliance with the acts creating these administrative areas.

35. The right to prospect, develop, and mine on National Forest System lands open to entry and location will be recognized.

36. When applicable, claimants/operators must have an approved Notice of Intent (NOI) or Plan of Operation (POO) and bonding in accordance with 36 CFR 228 prior to initiating mining activity.

37. Activities proposed in mining operations under 36 CFR 228 should represent the next logical step of development of the claim(s). Where warranted, the Forest Service will work with the claimant/operator to develop a workable operating plan that protects surface resources, e.g., water quality and riparian values.

38. The Lolo National Forest will preserve corners and legitmate improvements on mining claims during timber harvests or other management activities.

39. Common variety mineral extractions may only be authorized where compatible with the goals of the management area.

40. Requests for geophysical exploration permits will be evaluated and the environmental effects of the proposed operation identified to the extent possible prior to issuance.

41. Before oil and gas lease stipulation recommendations are made, site specific analysis of environmental effects will be made. Stipulations which are displayed in Appendix F and based upon the Environmental Analysis for Oil and Gas of Nonwilderness Lands on the Lolo National Forest, 9/20/82, will be recommended in accordance with management area direction in Chapter III. In some instances, the stipulations will include a provision for "no surface occupancy." The lessee or designated operator has the right to explore for and extract oil/gas from his/her lease in accordance with the stipulations attached to the lease. Drilling requests are handled individually and receive an additional site specific environmental analysis. Drilling permits are issued by the Bureau of Land Management (BLM). The BLM will consult with the Forest Service in order to obtain site specific concerns and stipulations prior to approving the drilling permit.

42. The Forest will cooperate, to the extent possible, with other Federal or State agencies charged with the responsibility of administering laws, rules, regulations, etc., pertaining to the minerals resource and mineral operations. If a proposal for major mineral development is presented, the Forest Service will attempt to coordinate transportation planning to best meet needs of the agency and mineral developer.

Fire:

43. Air quality will be maintained at a level that is adequate for the protection and use of National Forest System Lands and that meets or exceeds Federal and State standards. Prescribed fire objectives for smoke management will be met within the constraints established by Montana State Airshed Group's Memorandum of Understanding.

44. A fire management plan complete with prescriptions for unplanned ignition prescribed fires, as appropriate, will be maintained to accomplish management direction and allocation contained in the Forest Plan.

45. An Escaped Fire Situation Analysis will be made for all escaped fires to determine appropriate control measures. (An escaped fire is defined as a fire that exceeds the first calculation of initial attack resources and reasonable reinforcements necessary for prompt control, or exceeds its fire prescription.) All unplanned fire ignitions will be evaluated to determine appropriate response measures, based on values at risk, cost effectiveness, and existence of site specific fire management prescriptions.

46. An economic analysis will be used to help determine the most cost-effective fire management organization to meet the objectives of the Forest Plan; appropriate adjustment will be made in the organization as a result of this analysis.

47. A balanced Fire Management Action Plan will be implemented annually that is cost effective and commensurate with threats to life and property, public safety, values, hazards, risks, and specific resource management goals and objectives. The average annual acreage burned at the most efficient fire management program level is expected to be 2,907 acres for wildfires and 9,280 acres for prescribed fires.

Roads:

48. Motorized vehicles will be limited to system roads and trails which are designated open in the Lolo Forest Travel Plan. Temporary exceptions are authorized for any Federal, State, or local officer, or member of an organized rescue or firefighting force in the performance of an official duty; any vehicle whose use is expressly authorized by the Forest Service under a permit, license, or contract; off-road travel by snowmobiles in areas designated as open in the Travel Plan, and occasional off-road trips for administrative use.

49. Lolo National Forest roads will be the minimum number and meet the minimum design standards possible while still meeting safety, user, and resource needs. This will require that logging system design, timber sale design, and transportation planning be emphasized on all timber sales to comply with this policy. No access roads will be constructed without an approved area transportation analysis and Environmental Assessment, or Environmental Impact Statement if required. Transportation planning will consider the effects of road location, road closures, and road maintenance on affected private landowners.

50. During road design, special emphasis will be placed upon minimizing soil movement. Rolling grades, maximum sustained grades of 8 percent, and stabilization of disturbed areas are design considerations for sensitive soils areas. All designs will be reviewed for compliance with the Forest Plan, project plan, and transportation plan. Drainage design will follow the Forest guidelines for various soil types. Single-lane local and collector roads will be constructed to a 12-foot width with ditch, and 14 feet where no ditch is required. Minimum fill widening and slough widening shall be added as required. (In certain cases where design speed is less than 10 m.p.h. and the design vehicle can be accommodated, a roadway width of 10 feet may be considered, and will require justification and approval by the Forest Supervisor prior to construction.)

51. Road building slash treatment will be the most cost effective that will meet the management prescription in the Forest Plan and project environmental analysis. Scattering will be the first method considered. In areas where scattering is not feasible, the next most cost effective method meeting all the objectives will be used. Providing firewood with the slash treatment method will be considered.

52. Manage Forest roads to provide for resource protection, wildlife needs, commodity removal, and a wide range of recreation opportunities. In most areas on the Forest, this will involve leaving some roads open, closing some roads seasonally, and closing other roads on a permanent basis. Generally, arterial and major collector roads will be left open, whereas local roads will generally be closed. Decisions for road management will be based upon public involvement through the Travel Plan revision process. Primary benefits to be considered are: optimizing big-game production, providing a variety of hunting recreation experiences, protecting critical grizzly bear habitat, reducing sediment in streams, reducing road maintenance costs, and providing for firewood and commodity removal. The criteria to be used to analyze the need for road use restrictions are from the 1984 edition of the Forest Travel Plan and are detailed as follow:

    a. Roads will be closed when necessary to protect the safety of Forest users. Examples include roads with hazards such as avalanche, landslides, forest fires, flooding, and timber harvest operations.

    b. Roads may be closed when roadway use increases soil movement and adversely affects water quality. On sensitive soil areas, wet season restrictions will be applied unless the road has surfacing or other features to make the road suitable for wet season use.

    c. On highly productive big-game summer range, open road densities of existing roads will be restricted to a maximum of 1.1 miles of road per section and all new roads, except arterials, will be closed year-round (average values calculated over designated herd-unit analysis areas).

       New roads will be closed to the public year-round in areas of moderate big-game summer range, but roads now open (1984 Travel Plan) will remain open. Snowmobiles will be permitted after December 1 unless restricted for other reasons.

Roads on low value summer range will remain open unless closed for other reasons.

d. Areas with high potential for walk-in hunting or fishing experiences will be considered for road closures. Open road density during the hunting season will remain the same as that now existing (1984 Travel Plan) to continue to meet State objectives for big-game hunting recreation.

e. Roads within grizzly bear habitat may be closed seasonally if it is determined that an open road may be increasing the risk of human-caused bear mortality. Within designated Essential Habitat spring range, all nonarterial systems will be closed April 15 to June 15. On summer range, roads that bisect identified critical habitat components will be closed July 15 thru October 15.

f. Roads may be closed to help protect known historic or prehistoric sites.

g. Temporary closures will be considered for public safety and to mitigate for fire damage, roadway erosion, and similar conditions.

h. Road closures will be considered if the cost of road maintenance exceeds the benefits received.

i. Road closures and re-openings will be considered when public support and/or concern is expressed through normal channels of communication. Such considerations will be included in the normal Travel Plan revision process.

j. Road closures will reflect needs of the public in special circumstances and during the different seasons of the year. Emergency events such as fire suppression and search and rescue activities shall be permitted on closed roads. Activities such as firewood gathering, mining, and berrypicking could occur provided the objective of the closure is not compromised.

k. The need for protection of administrative or special use facilities will be a consideration for the closure of certain roads. Lookouts, guard stations, and transmission sites are examples of such facilities.

l. Roads should be considered for closure when necessary to minimize conflicts between user groups. Examples include conflicts between walk-in hunters and road hunters, cross-country skiers and snowmobilers, horseback riders, and motorcyclists.

m. The quality of dispersed recreation opportunities will be a factor when considering a road closure (providing for four-wheeled motorized recreation in some areas and other forms of motorized recreation in others, where both uses in the same area may result in diminished quality of the recreation experience).

n. Road closures will not preclude the use by holders of outstanding valid rights.

o. Off-road vehicle use will be limited to those areas designated in the Forest Travel Plan.

Visual Quality:

53. Visual rehabilitation of past management activities will be evaluated where needed during preparation and implementation of the timber sale program.

Cultural Resources:

54. Cultural resources will be considered during the planning process for all proposed Forest undertakings. Inventories will be conducted prior to ground disturbing activities as an integral part of project planning. All sites located will be evaluated for possible nomination to the National Register of Historic Places in consultation with the State Historic Preservation Office. Those properties determined eligible for National Register listing will be managed in a manner consistent with the standards specified by the State Historic Preservation Office, the Advisory Council on Historic Preservation, as well as applicable USDA regulations.

55. The Forest will coordinate, on a yearly schedule, with representatives from the Confederated Salish and Kootenai Tribes to discuss the types and location of proposed Forest undertakings. This is a requirement specified within the American Indian Religious Freedom Act to ensure that areas on National Forest System lands which are important to contemporary Native Americans for religious reasons are not inadvertently impacted.

Coordination with other Native American groups could occur if there was reason to believe traditional or contemporary religious areas, important to these groups, were present on the Forest.

Insects and Disease:

56. Implementation of the principles of integrated pest management will be accomplished through sound silvicultural prescriptions. Silvicultural practices will be designed to consider past, current, and potential impacts from insects and diseases.

57. Biological and vegetative management practices will be utilized to control insect and disease infestations. Chemical control will be recommended when other methods are ineffective and only after following all required procedures.

58. In mountain pine beetle epidemic areas, all stands will be risk-rated and treatment priorities established on highest risk stands.

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III. Management Area Direction

The National Forest land within the Lolo National Forest has been divided into 28 management areas, with different management goals, resource potentials and limitations. The management areas are shown on the accompanying maps, which can be used for reference. The management area maps of record consist of a set of larger scale (1 inch per mile) maps on file in the Forest Supervisor's Office.

Except for Congressionally established or special administrative boundaries, the management area boundaries are not firm lines and do not always follow easily found topographic features, such as major ridges. The boundaries represent a transition from one set of opportunities and constraints to another with management direction established for each. The boundaries are flexible to assure that the values identified are protected and to incorporate additional information gained from further on-the-ground reconnaissance and project level planning.

The Forest-wide management direction included in Chapter II of this Plan applies to all management areas.

This chapter describes each management area and lists the goals, management standards, schedule of management practices, and monitoring requirements for each area. Management Areas are frequently identified with particular "habitat groups." Vegetative communities are identified and described with seven vegetative groups. Habitat types (Pfister, et al., 1977) express different combinations of climate, soils, and topography that are directly related to species occurrence and productivity, and grouping of these types is convenient for broad-base land planning. Habitat types having similar growth characteristics and management implications were grouped for the Lolo National Forest (On and Losensky, 1976). These groups range from nonforest (rock, meadow, grassland), through the dry-warm and dry-cool Douglas-fir types, moist spruce-fir types, to the cool and cold alpine fir types. Fourteen coniferous species or species groups are found on the Forest.

MANAGEMENT AREA 1

35,686 Acres

A. Description

Management Area 1 consists of scattered parcels at all elevations, in Habitat Groups 0 and 6 that are non-Forest or noncommercial forest land. These parcels will generally have roads passing through them; the roads will be either open or closed to public use as determined by the Forest Travel Plan.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

B. Goals

Maintain near-natural conditions; but allow roads to cross to provide access to other management areas, consistent with protection of basic soil and water values.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may be permitted.

2. A variety of dispersed recreation activities are possible and can be supported by construction of trails and trailhead and sanitation facilities. Developed campgrounds or similar facilities will not be constructed.

3. Tree removal will be limited to that required to eliminate safety hazards or to permit road or trail construction and firewood removal adjacent to roads. The management area is classified as unsuitable for timber production.

4. Management practices to maintain wildlife habitat will be permitted.

5. All management prescriptions will be compatible with the needs of grizzly bear on components of this management area which are within the essential habitat.

6. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan (described in Appendix X).

   Suppression methods will be selected to minimize the impact of heavy equipment on soil disturbance and soil displacement.

7. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

8. No scheduled timber harvest will occur. Timber salvage and firewood removal may occur where access exists.

9. Salvage of dead, dying, or high hazard trees is permitted to prevent disease and insect population buildup. Stand manipulation to prevent losses will not be practiced.

Minerals Practices:

10. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 3, 3a, 3b, 3c, 3g, 3h, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

    Mineral material sources may be established and permits issued in those locations where such development will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Road Practices:

11. Roads will not be constructed for surface management objectives within this management area. Roads may be constructed through segments of this management area to provide access to other management areas. Roads may be permitted for mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and it is the next logical step in the development of the mineral resource.

Visual Quality Practices:

12. Management practices will follow the guidelines for the Modification visual quality objective except where visible from viewpoints specifically recognized as sensitive. Maps of these viewpoints and distance zones are on file and must be consulted to determine the visual quality objective. If the visual quality objective is Modification, it will be met from the nearest viewpoints contained in Sensitivity Level maps on file.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special Standards will also apply.

1. General

    a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special use permits may be permitted; however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on slope steepness.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes, will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project-related work use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big-game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eleminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

a. Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

(1) During periods when there are no active projects, sampling frequency will be twice annually: a) snowmelt period - early April to late June; and b) low flow period - late August.

(2) During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

(1) Discharge
(2) Temperature
(3) Specific Conductivity
(4) Turbidity
(5) Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	1.72	0
Noxious Weed Control	Acres	6	35
Minerals Management	Cases	3	3
Fuels Management (FFP)	Acres	139	139
Trail Construction/Reconstruction	Miles	.6	.6

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-3, 1-4, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 2

3,774 Acres

A. Description

These sites include Ranger Stations, work centers, lookouts, and other sites throughout the Forest used in the administration of National Forest lands. They will be maintained according to administrative need. Most of these sites will have road access. Some facilities will be closed to the public.

B. Goals

Provide sites for facilities necessary for the administration of Lolo National Forest lands.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will be allowed where use is compatible with administrative functions.

2. Dispersed recreation activities are permitted that do not interfere with administrative functions.

3. Trees with a high potential for physical failure or susceptibility to insects and disease will be periodically evaluated. Hazardous conditions will be reduced by using acceptable methods such as single-tree removal, thinning, or prescribed burning.

4. Tree removal will be limited to that required to eliminate safety hazards or permit construction or expansion of facilities. The management area is classified as unsuitable for timber production.

5. The portions of the management area presently withdrawn from mineral entry and all proposals will be evaluated using the criteria in Appendix H.

6. Wildfires will be controlled to protect structures and improvements. Prescribed fires will be utilized for hazard reduction purposes.

7. Roads will be constructed to provide access to the areas and within the areas as necessary for administrative purposes.

8. Management practices will follow guidelines for the Modification visual quality objective. The impacts of management activities will be visually assessed from the nearest viewpoints contained in the Sensitivity Level maps on file.

Timber Practices:

9. Timber may be removed as necessary to further the purposes of the specific site. Timber removal will be under administrative use rather than commercial timber sale authority.

Minerals Practices:

10. The following oil and gas lease prescriptions are applicable to this Management Area: 3, 5, 6, 8, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable. Mineral material sources may be established and permits issued in those locations where such development will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Site Administration:

11. Structures and improvements may be constructed as needed to meet facility support needs for Forest administration.

12. All administrative sites will have a site plan and a recurrent maintenance program.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	0.18	0
Noxious Weed Control	Acres	0	14

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 3

60 Acres

A. Description

This Management Area includes significant historical, archaeological, and/or paleantological sites. Examples of significant sites are homesteads, mining towns, historic mining districts, and Native American occupation sites. These include Halfway House, Fort Fizzle, and Mountain House. (The total acreages in this management area will increase as additional areas are identified and approved. There will be a corresopnding decrease in the acreage of management areas within which new sites are discovered.) These sites may have public access.

B. Goals

Insure that historic and/or cultural sites are preserved and protected.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Tree removal will be limited to that required to eliminate safety hazards. The management area is classified as unsuitable for timber production.

2. Trees with a high potential for physical failure or susceptibility to insect and disease will be periodically evaluated. Hazardous conditions will be reduced by methods such as single-tree removal or thinning.

3. The components of this management area will be evaluated for withdrawal from mineral entry (Appendix H).

4. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   Fire suppression methods will be selected to minimize or eliminate the impact on historical site values.

   Range Practices:

5. Livestock grazing will be permitted where compatible with maintaining historic values.

Recreation Practices:

6. Recreation will be limited to day use activities unless provided for in special site direction. Recreation development is permitted as necessary for site protection and interpretation.

Timber Practices:

7. Timber removal will be limited to that necessary to enhance historic values and provide for public safety. Timber removal will be under administrative use rather than commercial timber sale authority. Slash disposal methods will be employed that do not threaten or impact historic values.

Minerals Practices:

8. The following oil and gas lease prescriptions are applicable to this Management Area: 3, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable. Mineral material sources may be established and permits issued in those locations where such development will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Road Practices:

9. Road and trail construction will be permitted to provide public access and interpretive facilities, to the extent that the historic and/or cultural values are not compromised.

Visual Quality Practices:

10. Management practices will follow guidelines for the Partial Retention visual quality objective. Areas where the visual quality objective is not being met will be rehabilitated.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Noxious Weed Control	Acres	0	4

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evauluted in this Management Area are described in Table 5.1.

5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 4

265 Acres

A. Description

Management Area 4 consists of the immediate vicinity around active or recently active mineral extraction and processing operations. (Total acreages in this management area will increase as other mining operations are identified. There will be a corresponding decrease in the acreages of whatever management areas within which these operations occur.) Public use of roads in this Management Area may be restricted.

Active Mineral Operations

Property Name	Operator	Location	Commodity
Nugget Claims	Eddy Peak Mining Co.	sec. 23, T16N, R3W	Gold-Placers
Lubelle Claim	Clay Lewis	sec. 21, T17N, R24W	Gold-Placer
Keystone Mine	Silver Lite Mining Corp.	sec. 27, 34, T18N, R26W	Gold, Silver-Lode
Nancy Lee Mine	Nancy Lee Mining Co.	sec. 31, T18N, R26W	Silver-Lode
Calumet Claim	Pete Balison	sec. 31, T15N, R25W	Gold Placer
USA Property	U.S. Antimony Corp.	sec. 19-20, 29-30, T21N, R31W	Antimony-Lode
Ward Lode	Ward Development Co.	sec. 21, T11N, R22W	Copper, Gold, Silver-Lode

B. Goals

Encourage responsible development of mineral resources in a manner that recognizes National and local needs and provides for economically and environmentally sound exploration, development, production, and reclamation.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may be permitted, if consistent with the management prescription for the adjacent area.

2. The management area is classified as unsuitable for timber production. Tree removal for surface management purposes will be limited to that required to eliminate safety hazards or permit road construction.

3. A cooperative working relationship will be established with the mineral operator.

4. Wildfire suppression methods will be applicable to Fire Management Unit 2, described in Appendix X. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

5. Wildfires at and near the vicinity of mining operations will be suppressed.

6. Roads may be constructed to meet Forest needs and will be permitted for mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and it is the next logical step in the development of the mineral resource. Road locations will be coordinated with the mineral developer.

Minerals Practices:

7. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 3, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Mineral material sources may be established and permits issued in those locations where such development will not conflict with the rights of the claimants or the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions for site reclamation.

Visual Quality Practices:

8. Management practices will follow guidelines for the Modification visual quality objective, is possible. Existing vegetation will be used to screen operations from adjacent areas. The impacts of management activities will be visually assessed from the nearest viewpoints contained in the Sensitivity Level maps on file.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Noxious Weed Control	Acres	0	8

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Mangement Area are described in Table 5.1.

4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 5

1,581 Acres

A. Description

This Management Area consists of potential transportation and utility corridors that may be identified on the Lolo Forest. Existing and potential rights-of-way will be evaluated to determine if they are compatible with other facilities or uses. If they are determined to be capable of accommodating more than one facility they will be designated a right-of-way corridor (36 CFR 219.27(a) (9)).

The Management Area will consist of the land directly under and adjacent to the facility such as a pipeline or power line. As these corridors are identified, the acreages within them will be deleted from the management areas they cross. This area generally has road access for construction and maintenance. Public use may be restricted.

B. Goals

1. Provide for corridors on Lolo National Forest System land appropriate to the facility.

2. Provide for other resource uses in corridor areas.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may be permitted, consistent with the management prescription for the adjoining area.

2. Dispersed recreation activities are permitted.

3. Trees will be removed as necessary to meet clearing requirements for construction and maintenance of the transmission facilities. The Management Area is generally classified as unsuitable for timber production. In some cases, conductors may be high enough to permit uninterrupted timber growth beneath them; in such cases, the land will be classified as suitable for timber production and managed in accordance with the adjacent management area(s).

4. Access to the corridor will be permitted for construction and maintenance.

5. Management practices for other resources will not interfere with corridor facility objectives.

6. The right-of-way management plan provided for by each land use grant will be consulted for management direction.

7. Wildfires will be controlled to protect structures and improvements. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

   Corridor Management Practices:

8. Complete slash disposal is desirable in most cases.

   Minerals Practices:

9. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 3, 3d, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

   Mineral material sources may be established and permits issued in those locations where such development will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

   Visual Quality Practices:

10. Management practices will follow guidelines for the Modification visual quality objective. The impacts of management activities will be visually assessed from the nearest viewpoints contained in the sensitivity level maps on file. Vegetative and topographic screening will be used where possible to minimize visual impacts.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	0.07	0
Noxious Weed Control	Acres	5	9

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 6

3,307 Acres

A. Description

Research Natural Areas:

Management Area 6 contains the proposed Research Natural Areas (RNA) identified on the Lolo National Forest to meet Regional targets for examples of major forest ecosystems in western Montana. To date, six areas have been selectd to maintain undisturbed ecosystems for future observation and study: Plant Creek, Missoula District - warm to cool Douglas-fir site; Pyramid Peak, Seeley Lake District - cool Douglas-fir-subalpine fir site; Barktable Ridge, Thompson Falls District - moist subalpine fir site; Carlton Ridge, Missoula District - cold subalpine fir site; Sheep Mountain Bog, Missoula District - sphagum bog and wet sedge meadow; Squaw Creek, Plains District - forested scree, and warm and dry ponderosa pine and Douglas-fir site; Petty Creek, Ninemile District - cool and moist Douglas-fir and grand fir site; and Council Grove, Missoula District - cottonwood bottom. These areas are further decribed as follows:

Location	Habitat Type Code	Habitat or Veg. Type	Elevation	% Slope	Precip	Land Type	Acres
Plant Creek	260	Psme/Phma	4500	50	25"	12	258
Missoula RD	280	Psme/Vagl					
	290	Psme/Libo					
Pyramid Peak	280	Psme/Vagl	6000	50	40"	12	520
Seeley Lake RD	330	Psme/Cage					
	690	Abla/Xete					
		Snowslide					
Barktable Ridge	710	Tsme/Xete	5500	50	55"	12	312
T. Falls RD	680	Tsme/Mefe				14	
	690	Abla/Xete				35	
	620	Abla/Clun					
Carlton Ridge	860	Laly-Abla	7000	20	75"	16	920
Missoula RD	850	Pial-Abla				14	
	830	Abla/Luhi					
	730	Abla/Vasc					
	670	Abla/Mefe					
	690	Abla/Xete					
	620	Abla/Clun					
Sheep Mtn Bog	330	Psme/Cage	6500	20	35"	12	105
Missoula RD	690	Abla/Xete					
	670	Abla/Mefe					
	830	Abla/Luhi					
		Mtn Bog					
		Wet Meadow					

(Continued on following page.)

(Continued)

Location	Habitat Type Code	Habitat or Veg. Type	Elevation	% Slope	Precip	Land Type	Acres
Squaw Creek Plains RD	010	Scree	4000	50	25"	20	616
	130	Pipo/Agsp					
	210	Psme/Agsp					
		Aspen Grove					
		Alder-Water Birch Forest					
		River Terrace Meadow					
Petty Creek Ninemile RD	250	Psme/Vaca	4500	30	35"	38	310
	290	Psme/Libo					
	520	Abgr/Clun					
	590	Abgr/Libo					
	260	Psme/Phma					
	310	Psme/Syal					
	340/350	Psme/Spbe, Psmc					
Council Grove Missoula RD		Cottonwood Bottomland	3200	Flat	16"	Alluvial	160

In addition, five minor types may be required to complete the Lolo portion of the Regional targets. They are:

	Habitat Type Code	Habitat or Veg. Type
Forested	340	Psme/Spbe
Nonforested	None	Feid/Deca
	None	Deca/Carx
Aquatic	None	Temporary Pond
	None	Low Production Potential Lake

The total acreages in this Management Area will increase as additional areas are identified and approved. There will be a corresponding decrease in the acreage of management areas within which new RNA's are located.

The Lolo Peak-Carlton Ridge area has the potential for a ski area of national class. The location appears to contain sufficient room for both opportunities. Researchers have indicated that the area for research need not be in one solid block.

MA 6

Botanical Areas:

Botanical areas contain examples of vegetation unique or limited in the area of concern. As such they do not warrant classification as a Research Natural Area since they normally consist of vegetation not common to the area. To date two areas have been identified for this designation: Mary's Frog Pond and Shoofly Meadow.

Mary's Frog Pond (30 acres) contains species of Sphagnum of limited occurrence in Montana along with relict populations of Drosera rotundifolia, Vaccinium accidentale and Menyanthis trifoliata.

Shoofly Meadows (76 acres) - A collection of Sphagnum riparium was made in Shoofly Meadows which represents the only known location for this species in Montana and only the second location in the contiguous western United States. Shoofly Meadows is located in the non-wilderness portion of the Rattlesnake National Recreation Area and Wilderness.

Areas assigned to this designation may increase as other examples are located. There will be a corresponding decrease in the acreage of management areas within which they are located.

B. Goals

Provide areas for nonmanipulative research, observation, and study of undisturbed ecosystems which typify important forest, shrubland, grassland, alpine, aquatic, and geologic or unique vegetation types on the Lolo National Forest.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will not be permitted unless needed to meet area objectives.
2. Timber harvest is not permitted. The Management Area is classified as unsuitable for timber production.
3. Wildlife habitat improvements generally are not permitted.
4. Mineral materials permits are not allowed. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources. The components of this Management Area will be evaluated for withdrawal from mineral entry (Appendix H).

5. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the fire management plan, described in Appendix X. Suppression methods will be selected to minimize impacting Research Natural Area values. Fire retardant will not be used.

6. Periodic evaluation will be made for significant insect and disease problems. Generally, no control measures will be undertaken for insect and disease control unless epidemic populations exist and adjacent lands are severely threatened.

7. Road construction is permitted as necessary to meet area objectives. Public use may be restricted.

8. Management practices will follow guidelines for the Retention visual quality objective. The impacts of management activities will be visually assessed using maps on file containing viewpoints specifically associated these objectives.

Minerals Practices:

9. The following oil and gas lease prescriptions are applicable to this Management Area: 3, 4, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Management Area Practices:

10. Improvements such as fences or buildings are generally not permitted except where needed to meet Research Natural Area objectives. The Carlton Ridge RNA proposal should not preclude the development of the potential ski area on the north slopes of Lolo Peak and Carlton Ridge. The establishment report for this RNA must discuss alternatives available for making the RNA compatible with the potential ski area development while ensuring retention of the principal research opportunities (e.g., alpine larch/western larch hybridization studies).

11. Research activities will be nondestructive and nonmanipulative.

12. No special-use permits will be allowed unless the proposed use is clearly compatible with the objectives of the Management Area.

13. These lands will be retained in National Forest ownership.

14. Specific direction for protection and management will be developed for each approved area.

MA 6

D. Schedule of Management Practices

Select the remaining areas needed to complete the target for Forest ecosystems and file establishment reports on them within 5 years.

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	0.15	0

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this management area are described in Table 5.1.

1-3, 1-4, 5-1, 8-1

MANAGEMENT AREA 7

343 Acres

A. Description

This Management Area consists of 29 campgrounds and/or picnic areas located throughout the Forest. Development ranges from an essentially natural environment with minimal facilities to a high degree of site modification with comfort and convenience facilities including paved roads, water systems, flush toilets, and boat launches. All of these sites contain sanitation facilities, picnic tables, and fireplaces. Most campgrounds and picnic areas are located in the riparian zone. Public road access is generally available but may be restricted during certain seasons.

B. Goals

Maintain the present range and quality of developed recreation sites to contribute to the public's enjoyment of the National Forest.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will not be permitted.
2. Developed campgrounds or picnic areas will be maintained and rehabilitated, but generally not expanded beyond present capacity. Expansion would only be considered in the Clearwater Chain-of-Lakes area if future demand exceeded capacity.
3. Trees with a high potential for physical failure or susceptibility to insects and disease will be periodically evaluated. Hazardous conditions should be reduced by using acceptable methods such as selective removal or thinning of trees.
4. Tree removal will be limited to that required to eliminate safety hazards and maintain or improve recreation values. The Management Area is classified as unsuitable for timber production.
5. The components of this Management Area that are presently withdrawn from mineral entry and all proposals will be evaluated using the criteria in Appendix H.
6. Mineral materials permits will not be issued.
7. Wildfires will be controlled to safeguard life and property. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.
8. Roads may be constructed as necessary to meet management goals.

9. Funds will be allocated for the rehabilitation of existing sites on a cost effective basis considering the following:

    a. Existing and projected use levels.

    b. Proximity to population centers, popular lakes and streams, and major travel routes.

    c. Opportunity to provide savings of fossil fuels.

    d. Investment and maintenance costs.

    e. Opportunity to provide for a wide range of public need.

Recreation Practices:

10. Pathways, picnic and camp units, toilets, and boat launches will be constructed or modified to accommodate wheelchairs where feasible.

Timber Practices:

11. Tree removal will be limited to that needed to maintain or improve recreation values.

Minerals Practices:

12. The following oil and gas lease prescriptions are applicable to this Management Area: 3, 5, 6, 7, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Fire Practices:

13. Prescribed burning may be conducted, especially in Habitat Type Groups 1, 2, and 3, for enhancing the appearance of sites, hazard reduction, and slash disposal purposes. Burning intervals will approximate the natural fire cycles in these groups.

Economic Practices:

14. Priorities for expenditure of funds on existing sites are, in order of importance, to:

    a. Correct serious health problems.

    b. Eliminate hazards to public safety.

    c. Reduce fire hazard.

    d. Eliminate pollution and correct serious resource damage.

e. Construct facilities needed to protect the site.

f. Implement needed visitor information programs.

g. Provide adequate level of service to the recreation visitor.

h. Provide facilities needed primarily for the convenience of the user.

Visual Quality Practices:

15. Management practices will follow guidelines for the Partial Retention visual quality objectives, except clearing will be permitted to accommodate needed structures and facilities.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Noxious Weed Control	Acres	4	3

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

4-3, 5-1, 7-2, 7-3, 8-1 thru 10-1

MANAGEMENT AREA 8

664 Acres

A. Description

This Management Area consists of portions of three local ski areas: Marshall, Snow Bowl, and Lookout Pass. Areas on National Forest land contain ski runs, ski lifts, and lodges. These areas are under special-use permits issued to private operators to provide downhill skiing opportunities for the public. The existing areas have potential for limited expansion and other areas on the Forest have some potential for new development. For example, the Lolo Peak-Carlton Ridge area has the potential to be developed as a national-class ski area. Access to these areas is generally via public roads. Travel within this Management Area is for construction and maintenance; public use is generally restricted.

B. Goals

Provide opportunities for developed facilities to accommodate downshill skiing.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may be permitted if it does not conflict with the recreation use of the area.

2. Tree removal will be limited to that required to elimiante safety hazards or permit construction or expansion of facilities. The Management Area is classified as unsuitable for timber production.

3. Mineral materials permits will not be issued.

4. The portions of the areas under special-use permit that are presently withdrawn from mineral entry and all proposals will be evaluated using the criteria in Appendix H.

5. Wildfire suppression methods will be applicable to Fire Management Unit 2, described in Appendix X. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

6. Trees with a high potential for physical failure or susceptibility to insects and disease will be periodically evaluated. Hazardous conditions will be reduced by using acceptable methods such as single-tree removal or thinning.

7. Roads may be constructed as needed to meet management goals.

8. Management practices will follow guidelines for the Modification visual quality objective. The impacts of management activities will be visually assessed from the nearest viewpoints contained in the sensitivity level maps on file.

Ski Area Practices:

9. Areas will be managed using stipulations contained in the special-use permit. Management plans will be developed for each area according to the Forest Service Manual. Public services offered outside the normal operating season must be authorized by a special use permit.

10. Areas under special-use permit will not be expanded unless a clear public need exists and an environmental analysis supports the expansion.

11. If sufficient public interest develops for the construction of new ski areas, the proposed sites will be evaluated through an environmental analysis, including a feasibility study. Sites found to be suitable for this purpose will be advertised through a prospectus and bids will be solicited for the proposed development.

12. Ski area planners will coordinate with researchers to insure the potential development of a ski area on Lolo Peak-Carlton Ridge is compatible within the principal research opportunities (e.g., alpine larch/western larch hybridization studies) of the proposed Research Natural Area (refer to Management Area 6).

Minerals Practices:

13. The following oil and gas lease prescriptions are applicable to this Management Area: 3, 5, 6, 7a, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Noxious Weed Control	Acres	0	6

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 9

17,226 Acres

A. Description

This Management Area includes parts of the Forest that receive concentrated public use. They are located throughout the Forest near population centers, popular streams and lakes and their associated riparian zones, or along major highways where a wide variety of developed and dispersed recreation opportunities, including trail- and road-related activities, are encouraged. Examples are the Blue Mountain Recreation Area; Pattee Canyon Recreation Area; lands along Rock Creek (east of Missoula), which is designated a "Blue Ribbon" trout stream; and the Clearwater Chain of Lakes area, which includes summer home and resort special uses. A proposed expansion of the Lookout Pass Ski Area is in this Management Area. The following trails classified under the National Trails System Act are located within this Management Area, the Pattee Canyon Ski Touring Trails, Blue Mountain Equestrian and Hiking Trail (No. 3), Blue Mountain Nature Trail (No. 4), and a portion of the Cascade Falls Nature Trail (No. 242), State Line Trail (No.738), Morrell Falls Trail (No. 30), Baldy Lookout-Lake Trail (No. 340), Skookum Butte Trail (No. 304), Continental Divide Trail, Lewis and Clark Trail, and Nee-Mee-Poo Trail. Refer to the Forest Plan map for locations.

A portion of the Blue Mountain Recreation Area is within that part of the Fort Missoula Military Reservation reserved as an addition to the Lolo National Forest under Executive Order 10403 of November 5, 1952. That order provided "that such lands shall remain subject to the unhampered use of the Department of the Army for purposes of national defense." The order further provides for continued applicability of Army rules and regulations "except as otherwise provided by agreement between the Secretary of Agriculture."

Access to this Management Area is generally available but may be restricted at times.

B. Goals

1. Provide for a wide variety of dispersed recreation opportunities in a forest setting available to a wide segment of society.

2. Provide for management of other resources in a manner consistent with the recreation objectives.

3. Provide for acceptable levels of water quality and fisheries habitat and improve opportunities for dispersed recreation.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may be permitted to the extent it does not conflict with recreation values.

2. Tree removal will be limited to that required to eliminate safety hazards or permit road or trail construction or meet other management objectives. The Management Area is classified as unsuitable for timber production.

3. Streamside vegetation will be managed for shade and filtering of overland flows.

4. Wildlife and fish habitat improvement projects are compatible. Such projects will strive to increase opportunities to view wildlife and, where permitted, to hunt and fish.

5. Management of these areas will be coordinated with other Federal, State, and local agencies and private groups to provide for the overall needs of the public.

   Military tactical and mission training, including the use of off-road vehicles, aircraft, blank ammunition, simulators, and flares, will continue in designated portions of the Blue Mountain Recreation Area, with the right of unhampered use granted the military by Executive Order 10403. In addition, live firing of small arms will continue on the designated range. The timing and areas of use will be negotiated between the Forest Supervisor and the Chief, Real Property Branch, Fort Carson, Colorado.

   Project proposals involving significant increases in military use, impacts on resource values in the area, or disruption of public use will be evaluated and approved on a case by case basis by the Forest Supervisor. Appropriate public notice and involvement will be part of the environmental analysis.

6. Small parcels of land will be acquired, or easements obtained, which will provide access to available recreation opportunities in high use areas.

7. Expansion of the Lookout Pass Ski Area into this Management Area may be permitted, if the results of an environmental analysis indicates that such an expansion is in the public interest.

8. Mineral materials permits will not be issued except that continuance of existing permits may be allowed if an environmental analysis concludes that such use will not impair attainment of the management goals for the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources. Withdrawals will be evaluated and consideration will be given to withdrawing individual parcels in Management Area 9 from mineral entry using the criteria in Appendix H.

9. Wildfire suppression methods will be applicable to Fire Management Unit 2, describes in Appendix X. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

10. Areas will be evaluated periodically for significant insect and disease problems such as mountain pine beetle. Buildups of minor insects and most disease agents do not normally pose threats to adjacent lands and effects of these will be accepted as naturally occurring phenomena.

11. Road access will be provided to meet recreation objectives. Trails may be constructed to provide for a variety of recreation activities and experiences.

12. The visual quality objectives will be determined as part of each recreation area plan.

Recreation Practices:

13. Recreation area direction will be developed to identify improvements necessary to accommodate dispersed recreation, minimize user conflicts, and provide for acceptable levels of public safety and sanitation. Examples are natural interpretive trails; facilities for the elderly and handicapped; winter sports trails; stock handling facilities; scenic vistas and turnouts; trail bike and snowmobile trails. Any recreational area plan developed will be incorporated into the Forest Plan as an amendment.

14. The Forest recreation specialist will be consulted about mitigation measures to protect the values associated with trails on the Forest classified under the National Trails System Act.

Minerals Practices:

15. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 3, 3c, 3g, 3h, 3i, 5, 6, 7, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	0.80	0
Land Exchange	Acres	42	0
Noxious Weed Control	Acres	0	241
Minerals Management	Cases	6	5
Total Timber Volume Offered*	MMBF	0.1	0.1
Clearcut	Acres	0	0
Shelterwood	Acres	0	0
Selection	Acres	0	0
Commercial Thin	Acres	0	0
Fuels Management (FFP)	Acres	66	66
Trail Construction/Reconstruction	Miles	.3	.3

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* Estimate of unregulated volume; refer to Timber Appendices.

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-3, 1-4, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 10

7,913 Acres

A. Description

This Management Area consists of small, unroaded parcels of land scattered throughout the Forest and at all elevations. They are generally unproductive for timber or have severe physical constraints for management such as steep rocky slopes and/or erosive soils.

Portions of this Management Area are included in the Forest Sevice designated essential grizzly bear habitat as shown on the Proposed Forest Plan map. The U.S. Fish and Wildlife Service will designate the critical habitat in the future which could include the Forest Service designated essential habitat.

B. Goals

Maintain these areas in a natural condition to protect basic soil and water resources and provide for activities that meet other resource objectives if they are appropriate without developing the area.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may be permitted.

2. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.

3. Tree cutting will be limited to that required to eliminate safety hazards or permit trail construction. The Management Area is classified as unsuitable for timber production.

4. All management prescriptions will be compatible with the needs of grizzly bear on components of this Management Area which are within the essential habitat.

5. Mineral materials permits will not be issued. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

6. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X. Suppression methods will generally be accomplished through the application of hand tools rather than heavy equipment.

7. Areas will be evaluated periodically for significant insect and disease problems such as mountain pine beetle. Buildups of minor insects and most disease agents do not normally pose threats to adjacent lands and effects of these will be accepted as naturally occurring phenomena.

8. Management practices will follow guidelines for the Retention visual quality objective. The impacts of management activities will be visually assessed using maps on file containing viewpoints specifically associated with these objectives.

Wildlife Practices:

9. Wildlife habitat will be managed primarily for old-growth users.

Minerals Practices:

10. The following oil and gas lease prescriptions are applicable to this management area: 1, 1a, 2b, 3, 3c, 3e, 3f, 3g, 3h, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

11. Roads will not be constructed for surface management purposes. Roads may be permitted for mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and it is the next logical step in the development of the mineral resource. Public use may be restricted.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	0.37	0
Fuels Management (FFP)	Acres	32	32
Trail Construction/Reconstruction	Miles	.1	.1

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-3, 1-4, 4-3, 5-1, 8-1

MANAGEMENT AREA 11

169,982 Acres

A. Description

This Management Area consists of large, roadless blocks of land distinguished primarily by their natural environmental character. They are located throughout the Forest in a variety of terrain and vegetative habitat types.

Portions of this Management Area on the Seeley Lake and Thompson Falls Ranger Districts are included in the Forest Service designated essential grizzly bear habitat as shown on the Proposed Forest Plan map. This Management Area represents approximately 13 percent of essential habitat on the Forest. The U.S. Fish and Wildlife Service will designate the critical habitat in the future, which could include the Forest Sevice designated essential habitat.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

There is no motorized access permitted in this Management Area except for development of mineral resources. Public use may be restricted.

B. Goals

1. Provide opportunities for a wide variety of dispersed recreation activities in a near-natural setting.

2. Provide for old-growth dependent wildlife species.

3. Within the portion of the Forest designated essential grizzly bear habitat, manage to contribute to the recovery of the grizzly bear to nonthreatened status.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may be permitted.

2. Developed recreation facilities, like campgrounds or picnic grounds, will not be constructed.

3. Trails and trail head facilities may be constructed or improved to increase accessibility, enhance dispersed recreation, and protect other resource values. Trails will be evaluated for nomination as part of the National Recreation Trail System.

4. Tree cutting will be limited to that required to eliminate safety hazards or permit trail construction. The Management Area is classified as unsuitable for timber production.

5. All management prescriptions will be compatible with the needs of grizzly bear on components of this Management Area which are within the essential habitat.

6. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes. Wildfires will be confined, contained, or controlled as provided for by criteria and guidlines for each fire management unit in the Fire Management Plan, described in Appendix X. Suppression methods will generally be accomplished through the application of hand tools rather than heavy equipment.

7. Areas will be evaluated periodically for significant insect and disease problems such as mountain pine beetle. Buildups of minor insects and most disease agents do not normally pose threats to adjacent lands and effects of these will be accepted as naturally occurring phenomena.

8. Management practices will follow guidelines for the Retention visual quality objective. The impacts of management activities will be visually assessed using maps on file containing viewpoints specifically associated with these objectives.

9. Mineral material sources may be established and permits issued in those locations where such development will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Minerals Practices:

10. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 2b, 3, 3a, 3c, 3e, 3f, 3g, 3h, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Fire Practices:

11. Unplanned ignitions will be managed under the direction described in Fire Management Unit 4 of the Fire Management Plan, Appendix X. Wildfires will be controlled, contained, or confined as provided for by criteria described in Appendix X. Suppression actions will generally be through the application of hand tools rather than heavy equipment.

Road Practices:

12. Roads will not be constructed for surface land management purposes. Roads will be permitted for mineral activities where construction is justified on the basis of mineral showings or data and where it is the

next logical step in the development of the mineral resource. Some roads exist as a minor inclusion in the otherwise roadless land and these will be analyzed for closure in the Forest Travel Plan process.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special standards will also apply:

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special use permits may be permitted, however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Wildlife

Prescribed fire may be used for big game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

3. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eliminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

4. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: 1) snowmelt period - early April to late June; and 2) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for two years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

5. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

MA 11

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	7.91	0
Land Exchange	Acres	168	2
Noxious Weed Control	Acres	0	28
Minerals Management	Cases	14	13
Trail Construction/Reconstruction	Miles	3.1	3.1

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-3, 1-4, 5-1, 8-1

MANAGEMENT AREA 12

363,308 Acres

A. Description

This Management Area consists of the portions of the Forest that have been classified as wilderness or are proposed for wilderness classification. It contains portions of the Selway-Bitterroot and Scapegoat Wildernesses and all of the Rattlesnake and Welcome Creek Wildernesses. Also included are three areas proposed for wilderness: Great Burn, Bob Marshall addition, Sliderock and Selway-Bitterroot addition. Portions of this Management Area are included in the Forest Service designated essential grizzly bear habitat as shown on the Proposed Forest Plan map. This Management Area represents approximately 56 percent of essential habitat. The U.S. Fish and Wildlife Service will designate the critical habitat in the future which could include the Forest Service designated essential habitat.

The Continental Divide National Scenic Trail (location to be determined via the Comprehensive Plan for the Continental Divide National Scenic Trail) are located within this Management Area on the Seeley Lake Ranger District. Refer to the proposed Forest Plan map for locations.

Motorized access is not permitted except as provided for under the Wilderness Act.

B. Goals

1. Manage existing wildernesses in accordance with the Wilderness Act of 1964.

2. Manage proposed wildernesses to protect their wilderness characteristics pending a decision as to their classification.

3. Within essential grizzly bear habitat, manage to contribute to the recovery of the grizzly bear to nonthreatened status.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Wilderness areas will be managed according to the Wilderness Act of 1964 and implemented through direction in the Forest Service Manual. Specific management direction for the Selway-Bitteroot, Welcome Creek, Rattlesnake, and Scapegoat Wildernesses for limiting and distributing visitor use, the extent to which wildfire, insect, and disease control measures may be desirable, and other direction are found in Appendix O-2 (available upon request). This direction is in compliance with the management prescriptions contained in this section.

2. If and when the proposed areas receive wilderness classification, wilderness management direction will be written for each area and incorporated into the Forest Plan by means of an amendment to the Plan. The management directives must be compatible with the management prescription in this section and/or requirements in the wilderness legislation.

3. Visitor use will be managed to a level compatible with the wilderness resource to prevent loss of solitude or unacceptable depreciation of the wilderness qualities.

4. Timber harvest is not permitted. The Management Area is classified as unsuitable for timber production.

5. As of January 1, 1984, all Congressionally designated wilderness was withdrawn from mineral entry and leasing. Before approval of proposed mining plans on claims located before this date, the claims will be examined to determine if prior existing rights were established. For areas recommended for wilderness by the Forest Service, all proposed mining activities must comply with reasonable conditions for the protection of National Forest resources in accordance with the general purposes of maintaining the wilderness unimpaired for future use and enjoyment of its wilderness character.

6. No oil and gas leases were issued in Congressionally designated wilderness areas before the withdrawal date. Any new lease application will be rejected. All oil and gas lease applications received for the lands recommended for wilderness by the Forest Service will be held in suspension until final disposition of the areas is made by Congress.

7. Approved wilderness fire management direction will be implemented that permit prescription fires to perpetuate the natural diversity of plant and animal communities. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X. Suppression actions need to be compatible with wilderness management objectives. Fire management direction for the Rattlesnake Wilderness must consider protection of the water quality of Missoula's municipal watershed.

8. Areas will be evaluated periodically for significant insect and disease problems such as mountain pine beetle. Buildups of minor insects and most disease agents do not normally pose threats to adjacent lands and effects of these will be accepted as naturally occurring phenomena.

9. Trail construction may be permitted and will be accomplished with minimal disturbance of the natural environment.

10. Management practices will follow the guidelines for the Preservation visual quality objective.

Range Practices:

11. Livestock grazing, where established prior to the effective date of the Wilderness Act, may be permitted provided that natural vegetative composition is maintained. Sustained livestock grazing may be reduced if damaging to the wilderness resource. Existing livestock management improvements may be maintained. Structural range improvements may be built only when necessary to protect the wilderness resource.

Facilities and Structures:

12. Facilities and structures may be constructed to insure the protection of the wilderness resource.

Fire Practices:

13. Unplanned ignitions will be managed under the direction described in Fire Management Unit 4 of the Fire Management Plan, Appendix X. Wildfires will be controlled, contained, or confined as provided for by criteria described in Appendix X. Suppression actions will generally be through the application of hand tools rather than heavy equipment.

BOB MARSHALL/GREAT BEAR/SCAPEGOAT WILDERNESS COMPLEX

Standards

Management standards for resources in the Bob Marshall/Great Bear/Scapegoat Wilderness Complex were jointly prepared by the Lolo, Lewis and Clark, Helena, and Flathead National Forests for common, integrated administration of these three adjoining wildernesses.

Visitor Use Management:

1. Management action for limiting and/or distributing visitor use in these Wildernesses will be based on application of the Limits of Acceptable Change (LAC) process described by Stankey, et al., in The Limits of Acceptable Change (LAC) System for Wilderness Planning, Intermountain Forest and Range Experiment Station, USDA - Forest Service, General Technical Report INT-176, January 1985. The LAC system provides a framework for determining the range of social and resource conditions acceptable in wilderness settings in order to ensure that a diversity of high quality wilderness recreation opportunities is provided. It focuses on limiting change to resources that, if overused, would degrade the wilderness experience, and defines opportunities for various levels of contact with the natural scene. The concept recognizes that an area's ability to accommodate use depends on several variables, including the intensity of management, visitor behavior, timing or season of use, and elevation and habitat of the specific sites involved. The lands within

the complex will be assigned to one of the four wilderness experience opportunity classes described in Appendix O-2. The management emphasis for each opportunity class is stated in the Managerial Setting portion of the description. The emphasis will be on Opportunity Classes I and II except around heavily used trail corridors.

2. The current limits on party size (15), head of livestock per party (35), and length of stay (14 days) will remain in effect. Exceptions must be approved in writing by the local District Ranger.

3. Managers will establish coordinated guidelines for the training of wilderness rangers and schedule training on a regular basis to ensure continuity of personnel adequately trained and current in state-of-the-art wilderness management techniques.

4. Remove or obliterate improvised camp structures, tent poles, fire rings, and other camp location indicators.

5. Establish a situation reporting network to keep administrative units updated on use, site conditions, trail conditions, and other helpful information that would support indirect, voluntary methods of visitor management. These reports will be made as needed. Information will not be provided to mass media, but used to respond to specific inquiries.

6. Managers may consider party size and duration of stay limits more restrictive than those currently in effect at sites where the limits of acceptable change are being approached or have been reached or exceeded. Inform outfitters and the public at least 30 days prior to implementing changes. In cases where site impacts exceed those acceptable levels for the assigned wilderness experience opportunity class (refer to Appendix O-2), immediate closure will be considered. Outfitters will be given 1 year's advance notice of changes which significantly affect their operations when an emergency does not exist. Notices will convey clearly the intent and purpose of changes from the current limits.

7. Visitor education and information programs will emphasize visitor contacts at portals and prior to the visitor reaching the wildernesses. Programs will be designed to allow about 60 to 80 percent of the users to read or hear the wilderness message prior to entering the area.

8. Encourage visitors to adopt a low impact camping ethic:

   - Use self-contained stoves.
   - Remove fire circles and scatter remaining charcoal.
   - Refrain from cutting green trees or limbs.
   - Practice a pack-in pack-out policy.
   - Use biodegradable soap and dispose of human waste and waste water from cooking and washing at least 100 feet from streams and lakes.

9. A public notice will be placed on the major portal bulletin boards requesting visitors' cooperation in refraining from disturbing archeological resources.

10. Prior to completion of the LAC process, the following interim standards will be followed:

    a. The primary objective of wilderness managers will be to minimize the amount of regulations and control present in wilderness. In conjunction with this objective, managers and wilderness rangers must work toward the preservation and restoration of the wilderness resource. (See FSM 2320.1 for a discussion and definition of wilderness and wilderness management objectives.) Managers will try indirect, voluntary methods as a first choice, monitor effects, and proceed to more direct enforcement strategies as needs dictate.

    b. Managers will concentrate on improving conditions at campsites with unacceptable impacts such as the following:

        (1) fifty percent or more of the available ground cover reduced or removed in the immediate area;

        (2) absence of seedlings and saplings;

        (3) tree roots exposed; tree boles defaced;

        (4) abundance of nonnative plant species;

        (5) lack of fuelwood;

        (6) rock fire rings;

        (7) trails radiating from the site to latrine locations, and creeks.

    c. The following methods will be used for managing campsites with unacceptable impacts. The methods used at specific sites and areas will be developed according to the LAC process.

        (1) Public information (public service media messages, portal notices, personal contact geared to informing the public what to look for in a campsite, and the characteristics of sites they want to avoid. Emphasize low impact camping.

        (2) Physical site alteration. Make unacceptably impacted sites less appealing/less accessible. Remove fire rings and other evidence of man's presence.

        (3) Post a site restoration message at portals and a sign at the overused site. Suggest alternative camping locations (by characteristic, not specific location) on the portal notice.

(4) For specific sites, set limits on party size, length of stay, and equipment requirements (e.g., stoves rather than campfires). Requires that the public be informed of areas to which limitations and requirements apply; requires followup administration to check for compliance.

(5) Initiate a self-issuing permit system. Post a destination signup sheet at portals to help managers and wilderness visitors alike to learn where other visitors intend to camp. This method must be accompanied by public information efforts to work effectively.

(6) Site specific closures involve informing the public, posting notices on portals and at administrative sites, and signing sites as closed to all camping until further notice. This method also requires administrative followup.

(7) A mandatory issued permit system requires users to check in at an administrative site and obtain a camping permit. Administrative units need to coordinate and communicate numbers of persons permitted at specific problem sites. Administrative followup is required.

Insects/Disease:

No control measures will be considered without an appropriate environmental impact statement. If control of insects and disease is necessary, it shall be carried out by measures which have the least adverse impact on the wilderness resource.

Wildlife and Fish:

1. Fish and wildlife management in the complex will be consistent with Policies and Guidelines for Fish and Wildlife Management in Wildernesses and Primitive Areas adopted by the Forest Service, Bureau of Land Management, and the International Association of Fish and Wildlife Agencies.

2. Managers will consult annually with personnel from the Montana Department of Fish, Wildlife and Parks relative to levels of harvest appropriate for maintaining native hunted and trapped species as part of the wilderness resource.

3. Natural processes such as fire, wind, and insect and disease activity will be the only agents permitted to influence vegetation and its associated wildlife in the wildernesss. No new exclosure structures will be installed.

4. The conservation of threatened and endangered species and their habitats will receive high priority in management of the wilderness resource.

5. The grizzly bear will continue to be a part of the wilderness experience. The public will be kept informed of known grizzly problem areas, but use will generally not be restricted from these areas. Education of bear avoidance techniques will be emphasized. Forest Supervisors will direct the development of more detailed standards necessary to protect both the bear and wilderness visitors. These standards will be consistent with Forest-wide standards for grizzly bear management in occupied grizzly bear habitat, and will be incorporated into the Forest Plan through amendment.

Cave Management:

1. Caves will be managed as an element of the wilderness resource with the objective of allowing them to remain untrammeled without significant development or advertisement. Retain the opportunity for the public to experience cave discovery and challenge. Wilderness caves shall not be signed, nor will they be marked on maps or discussed in brochures.

2. The interior portions of caves in wilderness are subject to the same management guidelines that apply to all other portions of wilderness. Permanent reference markings within caves are not permitted. Flagging may be used if promptly removed after it has served its purpose. Permanent or semipermanent installations and facilities are not permitted. All camping and exploration equipment will be packed out at the end of each trip unless excepted in writing by the District Ranger. Permanent caches will not be permitted.

3. The appropriate wilderness manager will establish contact with local caving clubs. Prior to any group's commencing exploration activity, a memorandum of understanding/volunteer agreement will be prepared addressing the items discussed above and the following: schedules; party sizes; campsites; length of stay; exploration methods; removal of equipment; and campsite cleanup. Groups will be encouraged to avoid publicizing/promoting cave locations and attractions.

4. Caving is considered a high risk activity. In keeping with wilderness management philosophy, no specific actions will be taken to reduce the hazards encountered in cave exploration.

Lake Management:

1. Minimize the evidence of man's activities around the lakes and return those showing signs of overuse in a more pristine condition.

2. Managers and wilderness rangers will encourage visitors to practice low impact camping techniques. Efforts will include informing the public of State laws that prohibit contaminating lakes with fish entrails and other refuse.

3. The use of chemical agents such as soap, detergents, and bleaches, whether biodegradable or not, will not be permitted in lakes.

4. Stock will not be tied, corraled, or picketed within 100 feet of a lake, spring, or stream.

Grazing:

1. The Conference Report to S. 2009 (H.R. 96-1126) in the section under "Grazing in National Forest Wilderness Areas", FSM 2323.2, established guidelines and policy relative to domestic livestock grazing in wilderness. These guidelines and subsequent Forest Service Manual directives govern livestock management in wilderness.

   This direction includes:

   a. Grazing in wilderness will be controlled under general regulations governing grazing. Any adjustments in the number of livestock permitted to graze in wilderness should be made as a result of land management plans or revision in grazing plans given consideration to legal mandate, range conditions, and the protection of the range resource from deterioration.

   b. The maintenance of supporting facilities existing in an area prior to wilderness classification is permissible.

   c. The replacement or reconstruction of deteriorated facilities should not require the use of "natural materials".

   d. The construction of new improvements or replacement of deteriorated facilities is permissible if in accordance with appropriate plans.

2. All grazing areas within the wilderness will be designated as livestock grazing allotments. Objectives for the allotment management will be consistent with resource conditions in the assigned wilderness opportunity class (refer to Appendix O-2). Managers will establish this process direction for:

   a. spring and early summer grazing dates (generally not before July 1) based on range readiness checks;

   b. determination of carrying capacity, condition, and trend;

   c. monitoring of actual use levels.

3. Livestock grazing will be limited to areas capable and suitable for such use. The criteria for determining capability and suitability will be developed as part of an inventory of the forage resources in the wildernesses.

4. Permanent range structures, not authorized by permit, will be removed.

5. Managers will encourage horse and packstock users (including administrative, outfitter, and private parties) to plan for the fewest number of animals required for each trip. No more than 35 horses or mules will be permitted per party. Lower limits will be considered where warranted and considered necessary to protect the wilderness resource.

6. Salt for livestock will be in block form and will be kept in leach-proof containers. Salt will be packed out of the wilderness at the end of each trip or at the end of the permitted use period.

7. Managers will inform persons using stock in the wilderness of the noxious weed problem. When supplemental feed is required, encourage the use of weed-free hay and pellets. Wilderness manager-public contacts should emphasize the relationship between overused, disturbed sites and noxious weed establishment. Stock users will be encouraged to use weed-free hay, but certification will not be mandatory.

8. Before a decision is made to control noxious weeds with chemicals, an environmental document must be prepared discussing the need for control, risk to human health, and the method to be used.

Transportation System and Signing:

1. The management of the trail system including design standards, maintenance frequency and levels in the complex will be in accordance with the direction developed through the LAC process.

2. Managers will agree to appropriate maintenance schedules and standards for trails or segments of trails that cross administrative boundaries at coordination meetings. All administrative segments of such trails will be maintained to the appropriate standard during the same season.

3. Managers will establish design standards and maintenance criteria for all portals. As a minimum, portals will have a bulletin board featuring a map of the area, and pertinent visitor information.

4. Sign standards, mounts, and materials will be in accordance with standard Region One specifications for Wilderness. Nonconforming signs will be phased out by attrition.

   Signs will be posted and used only when maps and route descriptions cannot adequately serve the wilderness users.

   The following signs will be permitted: wilderness boundary signs, directional signs at trail junctions, and administrative signs.

Cultural and Historic Resources:

1. Cultural and historic resources will be considered a unique and nonrenewable part of the wilderness. Above-ground evidence of sites or structures will be subject to natural processes.

2. Scientific study of these resources is permissible within the intent and concept of wilderness.

3. Complete a cultural resource assessment on the evidence of man's activities and structures in the wilderness. Objectives of the assessment are to identify and nominate to the National Register of Historic Places those structures that qualify, and evaluate alternatives for handling those that do not.

Outfitter and Guide Operations:

1. Prior to making a decision on the level of outfitter services, no additional outfitter and guide permits will be issued nor will approval be granted to expand operations beyond use levels authorized in 1978-1980 special-use permits. The maximum use level for each outfitter is based on the highest annually permitted use during the years 1978-1980.

2. A decision will be made establishing the level of outfitter services following completion of the LAC process and/or additional environmental analysis. The decision will include at least the following criteria:

   a. type and amount of services;

   b. existing operations to determine how they meet identified needs;

   c. existing operations to determine how they meet overall wilderness management objectives.

3. Increase on-the-ground administration and management of outfitter-guide permits.

4. Encourage outfitters to develop and use minimum impact use techniques and to educate their clienteles to these techniques. Emphasize the role of these techniques and their use in protecting the wilderness resource and the continued recognition of outfitter operations as a means for many publics to enjoy this resource.

5. The Outfitter Special-Use Permit will be the basis for determining conduct of outfitter and guide activities within the wilderness. Operations such as overnight use, day use, and drop camps shall be included.

6. Managers will develop camp standards for outfitter operations based on the Regional Forester's policy resulting from the 1980 Region One National Forest Outfitters and Guides Task Force recommendations and the LAC process. The standards should delineate acceptable developments and the extent of development, including:

   a. camp locations relative to trails, streams, lakes, and features;

   b. permanent and temporary improvements authorized;

   c. camp layout.

7. The use of spike camps will be evaluated during development or review of outfitter management direction. Spike camps which are not being utilized appropriately will be either reclassified accordingly, or use changed to abide by the terms of the permit.

8. Intensify efforts to eliminate or reduce unlicensed or unauthorized outfitter and guide use.

Administrative Facilities:

1. Existing administrative structures and facilities will be retained for wilderness administrative purposes during this planning period.

2. Cultural assessments of facilities will be required before decisions concerning their future status are made.

3. No new facilities or major expansion of existing facilities (administrative sites, lookouts, fences) will be considered during this planning period.

4. Radio repeaters, if necessary for wilderness administration, may be installed within wilderness only if locations outside the wilderness will not achieve communication needs.

Administrative Coordination:

To achieve coordinated and consistent management of the Scapegoat, Great Bear, and Bob Marshall Wildernesses, retain the management coordination team composed of District Rangers from each administrative unit. The team will serve as a coordinating body, making recommendations to appropriate Forest Supervisors concerning program budget proposals, standards and guidelines, and the implementation and monitoring of management direction.

Minerals, Oil and Gas Leases:

1. The 1964 Wilderness Act (P.L. 88-577) withdrew the Bob Marhsall, Scapegoat, and Great Bear Wildernesses from mining and mineral leasing laws effective midnight, December 31, 1983, except that, valid existing mining claims will be administered in accordance with appropriate mining laws.

2. Operating plans will minimize degradation of wilderness values.

Emergency:

1. Motorized equipment and mechanical transport may be allowed when an emergency condition exists which involves the health and safety of human beings (FSM 2326.11).

2. Removal of bodies and seriously ill or injured persons will be considered an emergency justifying landing of an aircraft. For emergency helicopter landings, natural openings will be utilized where possible rather than cutting new openings.

3. Public communications from inside wilderness will be restricted to emergencies.

Water:

1. Monitor water quality to meet or exceed State water quality standards.

2. All project proposals will be analyzed and evaluated to determine the potential water quantity and quality impacts. Mitigation measures will be developed to minimize adverse effects. If the unacceptable effects can not be adequately mitigated, the project will be redesigned or abandoned.

Air Quality:

1. Manage the airshed in the Bob Marshall and Scapegoat to meet Class I Air Quality Standard and Class II in the Great Bear and the Bob Marshall addition in the Lewis and Clark National Forest.

2. Where manageable or negotiable, identify and mitigate outside influences. The air quality related values will be identified when a PSD (Prevention of Significant Deterioration) action that may impact the wilderness is received.

Research:

Research may be conducted in wilderness but must be done in accordance with the concept of wilderness and within the constraints of FSM 2320. Requests will be considered only if wilderness is essential to the results of the research, there being no suitable land areas elsewhere. Where possible, research projects should be directed outside wilderness where similar areas are available or where wilderness values would not be jeopardized in the conduct of research. Research projects will be reviewed by the management coordination team and approved by the Regional Forester (see FSM 2323.9).

Continental Divide Trail:

1. A specific CDNST (Continental Divide National Scenic Trail) route will not be identified prior to approval of the comprehensive plan being prepared by the Department of Agriculture.
2. Individual inquiries about the trail will be handled on a case-by-case basis. Routes suggested may vary depending on the method of travel, proposed length of stay, season of travel, and degree of challenge desired.
3. One person per Forest will be designated as responsible for handling inquiries concerning the CDNST.

Lands - Special Uses:

1. These Management Areas are exclusion areas for utility corridors.
2. The Lolo Forest Landownership Adjustment Program will establish the priority for acquiring the private land in the Scapegoat Wilderness.

Wild and Scenic River

Where segments of the Flathead Wild and Scenic River are located in the Wilderness Complex, the more stringent standards will prevail.

SELWAY-BITTERROOT WILDERNESS

Standards

Management standards for resources in the Selway-Bitterroot Wilderness were jointly prepared by the Lolo and Bitterroot National Forests for common, integrated administration of the wilderness.

Recreation:

1. Maintain existing primitive and semiprimitive nonmotorized settings. Manage the area essentially free from evidence of human restrictions and controls. Mechanized use is not permitted in existing wilderness.
2. The primary means of visitor management will be education. Education will be oriented toward wildland ethics. Emphasis will be on contacting users prior to entering wilderness and at portals. An education action program will be developed annually.

Visual Quality:

The visual quality objective is preservation.

MA 12

Wilderness:

1. Representatives from each Forest with management responsibility for the wilderness will recommend indicators, standards, and processes for limiting change to acceptable levels using the "limits of acceptable change" process. Forest Supervisors will implement the "limits of acceptable change" by 1990. Until standards are established the following restrictions apply:
    a. Party size will be limited to 20 persons and 20 head of stock.
    b. No campsite will be occupied by a party for more than 14 days unless authorized.
    c. Visitor education, maps, and brochures will be used to inform the public of use problems, minimum impact camping techniques, conditions of occupancy and use, and wilderness philosophy.
2. Locate and post wilderness boundaries at access portals and other key points.

Range:

1. Monitor range forage condition, utilization, and production to provide management information for packstock, recreation stock, and wildlife use.
2. Nonstructural improvements shall be compatible with wilderness objectives. No new structural improvements will be installed.

Minerals and Energy Resources:

The area is withdrawn from mineral entry and leasing subject to valid existing rights established prior to January 1, 1984.

Lands:

1. Acquire private lands as they become available.
2. All new special use permits shall comply with wilderness goals and legal requirements.

Road and Trail System:

1. Design, locate, construct, reconstruct, and maintain trails in accordance with wilderness trail standards. Trails will normally be built and maintained with nonmotorized equipment.
2. Road construction to manage surface resources is prohibited.
3. Wilderness travelers will usually be guided by maps and publications rather than signs.

Protection:

1. Fire management prescriptions will be compatible with the goal of perpetuating natural ecosystems within wilderness but will consider adjacent land management goals outside wilderness.

2. Wildfires or portions of wildfires will be suppressed to protect human life and property.

3. Fires will be contained within wilderness boundaries unless fire management direction in adjacent management areas is compatible.

4. Fire management direction for the wilderness on Darby and Stevensville Ranger Districts follows:

    a. Develop a wilderness fire management action plan which recognizes irrigation water, fire behavior, and air quality concerns.

    b. Pending the completion of a wilderness fire management action plan continue to take appropriate wildfire suppression action of control, containment, or confinement.

5. Insects and disease will be allowed to play their natual role unless they are creating a serious threat to adjacent nonwilderness resources.

Air Quality:

Manage the airshed in the Selway-Bitterroot to meet Class I Air Quality Standards. Where manageable or negotiable, identify and mitigate outside influences. The air quality related values will be identified when a PSD (Prevention of Significant Deterioration) action that may impact the wilderness is received.

RATTLESNAKE WILDERNESS

Standards:

Management standards for resources in the non-wilderness portion of the Rattlesnake National Recreation Area and Wilderness are described in Management Area 28.

Water Quality:

Minimum campsite development will be provided in the Wilderness for horseback users at designated sites when these activities pose a water contamination risk.

Wildlife:

1. Grizzly bear use and habitat conditions will be monitored. Restrictions on recreation users are not anticipated.

2. Mountain goats reintroduced to the cliffs above Franklin Bridge will be monitored until well established.

Environmental Education:

1. The Forest Service will participate in a community committee including, but not limited to, representatives from the Missoula School District, University of Montana, and local teachers. The Forest Service will be available to assist in: a) developing curriculum materials for different grade levels; b) identifying specific areas in the RNRAW where curriculum materials can best be used; c) conducting environmental education credit workshops for local teachers--coordinated with the University of Montana, to include sections on environmental awareness and the urban/forest interface; d) developing RNRAW background materials for use by local school districts; and e) scheduling use patterns.

2. A cooperative program will be established with the University of Montana and the Intermountain Forest and Range Experiment Station to oversee professional research projects and the training of wilderness management specialists.

3. Items of historical interest will be retained as historic reminders and allowed to age naturally. Little Lake Cabin will be removed for public safety.

Recreation Opportunity:

1. The existing trail system will be maintained for the types of use depicted in the management direction and Decision Notice published on May 14, 1984.

2. One trail will be constructed. One mile of horsehiker trail linking the Rattlesnake Trail to the Triangle Peak Trail. This would provide a loop system with the purpose of expanding recreation opportunities in the Boulder Lake area and provide an alternative to entering the S. F. Jocko Primitive Area (entry into the Flathead Indian Reservation at this point is not permitted).

3. Overnight use by outfitters will not be allowed in the wilderness. In response to public concern, air transport services and services related to hunting will not be permitted.

4. Trail construction and signing will be excluded in Grant Creek, High Falls Creek, and McLeod Basin to maintain wilderness solitude.

5. Monitor and control artificial fish stocking in wilderness lakes so fishing activities do not impact wilderness solitude or lakeshore sites. Stream fishing in the Rattlesnake will be permitted above Beeskove Creek to provide additional nonwilderness recreation opportunity. Regulations and limits are established by the Montana State Department of Fish, Wildlife, and Parks.

6. Party size limits will be a maximum of 10 horses and 10 people in the wilderness to provide for solitude and to keep use within limits of campsite availability for overnight use. Supplemental feed will be required for stock due to the limited availability of natural forage.

Facilities:

Abandoned dams in the High Falls Creek drainage will be permitted to breach naturally with eventual return to a natural condition.

Vegetative Treatment:

Wildfire occurring in the Wilderness will continue to be suppressed in order to provide for the protection of the municipal watershed, private facilities, and adjacent private lands.

WELCOME CREEK WILDERNESS

Standards:

Prior to completing the carrying capacity determination, the following limitations on use will apply:

1. Day Use. Number of persons in a party will not exceed 10. The number of riding or pack animals will not exceed 10. These restrictions reflect concern for: a) resource protection considering trail location and grade; and b) maintaining social values and the opportunity for a quality wilderness experience. The numbers are liberal considering that use up to the present time, in the absence of restrictions, has generally been less than 10 persons/animals per party. However, the numbers are professionally judged adequate to protect the wilderness resource.

2. Overnight Use. Number of persons in a party will not exceed 10. The number of riding or pack animals will not exceed 10. Overnight groups will provide 10 pounds of pelletized supplemental feed per animal per day. Groups using riding or pack animals for prolonged trips, requiring more rations than can be packed in, will need to either cache rations at campsites in advance, or return to the trail head periodically to obtain feed. Length of stay at a single location or cumulative stay anywhere in Welcome Creek Wilderness will not exceed 14 days. These restrictions reflect concern for: a) resource protection, considering the physical/biological limitations of sites suitable for overnight use; and b) maintaining social values and the opportunity for a quality wilderness experience.

Fire:

Continue to suppress lightning- and human-caused fires in Welcome Creek Wilderness. The objectives of fire control include protection of life and property within the wilderness and prevention of unacceptable damage to resources and property outside the wilderness boundary. Develop fire management direction for the Rock Creek drainage, including Welcome Creek Wilderness and the proposed Sliderock Wilderness.

Develop a proposal for making the old roadbed with its culverts conform better to a wilderness setting by employing handwork methods such as screening with rocks, logs, or native vegetation; painting the outlets a dull earth-tone color; or reducing the length of the outlet.

Visitor Use Management:

There is no need to designate campsites. Improvised camp structures will be dismantled and obliterated when found. Hitchracks will not be installed. Improvised hitchracks will be dismantled when found. Shelters will not be provided. Improvised shelters will be obliterated when found. Garbage pits will not be provided. Past accumulations of debris having no historic or cultural value will be packed out and dump sites restored to natural appearances to discourage continued use. By means of portal signs, visitors will be informed of their responsibility to pack out all unburnable debris.

Range:

Drift fences will not be constructed.

The transportation system will be assessed as part of the carrying capacity study. Until that study is completed, no new trails will be constructed. Normal level I type (resource protection) maintenance will be used to improve bad spots that are contributing to resource damage.

A carrying capacity study will be prepared to analyze the need for future outfitter-guide services in Welcome Creek Wilderness.

Grazing:

Currently, the forage resource in Welcome Creek Wilderness is limited. No grazing permits have been issued and none will be. No range allotments occur nor will they be permitted. There are no range improvements nor will any be considered.

Wildlife and Fish:

No exclosure structures will be installed. No vegetation manipulation projects will be considered. No proposals for reintroduction of wildlife species will be considered. No stocking programs will be pursued. No fish habitat manipulation project will be considered.

Water:

There are no water improvements or developments in the Wilderness and none are being considered.

Only dead or down material may be used for fuelwood.

There are no administrative or special-use structures or improvements and none are proposed. Several miles of abandoned telephone wire needs to be collected and removed from the area.

Any use of motorized and mechanical equipment must be approved in advance of use by the Chief, except as approval has been assigned to the Regional Forester and the Forest Supervisor.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Land Exchange	Acres	126	2
Noxious Weed Control	Acres	0	8
Minerals Management	Cases	29	27
Trail Construction/Reconstruction	Miles	5.8	5.8

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-3, 1-4, 8-1

MANAGEMENT AREA 13

27,193 Acres

A. Description

This Management Area consists of lakes, lakeside lands, major second-order and larger streams and the adjoining lands that are dominated by riparian vegetation. The width of the components of this management area varies and is determined by riparian vegetation and valley bottom width but is a minimum of 100 feet each side of the associated water body. Riparian vegetation is vegetation requiring a high level of soil water. The area is often nearly flat and is subject to varying degrees of flooding.

This area includes the flood plains of streams and the wetlands associated with lakes and ponds. The natural and beneficial values of riparian areas include ground water recharge, moderation of flood peaks, visual and recreational enjoyment, fish and wildlife habitat, cultural resources, and timber and forage production. This Management Area lies outside of existing grazing allotments.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

Many Forest roads are located in this Management Area; new access will be constrained but may be allowed to cross if total resource needs require. Public access may be restricted based on the Forest Travel Plan.

B. Goals

1. Manage riparian area to maintain and enhance their value for wildlife, recreation, fishery and aquatic habitat, and water quality.

2. Provide opportunities to improve water quality, minimize erosion, and strengthen or protect streambanks through specifically prescribed vegetation manipulation and/or structural means.

3. Provide opportunities to improve fisheries and wildlife habitat through specifically prescribed vegetation manipulation and/or structural means.

4. Provide for healthy stands of timber and manage timber to give preferential consideration to riparian dependent species on that portion of the Management Area classified as suitable for timber production.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will be limited to occasional recreation packstock use. Areas determined to be suitable for livestock grazing, compatible with riparian area management, and required to fulfill public need would be considered for reallocation to Management Area 14 through the Forest Plan amendment or revision process.

2. Encourage and develop opportunities for dispersed recreation. Design trails for wildlife viewing and interpretation. When possible, locate facilities out of flood plains. Any new development that must be located in these areas will be designed to be flood proof without stream alteration.

3. Timber harvest will be used to moderate changes in streamflow regimen and maintain or improve fish and wildlife habitat values, recreation opportunities, and other riparian conditions on that portion of the management area classified as suitable for timber production (53 percent). Tree removal will be limited to that required to eliminate safety hazards and permit road or trail construction on that portion of the Management Area classified as unsuitable for timber production (47 percent).

4. Provide for all wildlife species' needs at a moderate (60 percent population potential) level. High priority habitat projects will be selected and related to recreation opportunities.

5. Maintain natural habitat or restore conditions for indigenous aquatic organisms, including fish, by management of vegetative conditions, channel structure, and limiting those activities or developments that are adverse to these organisms or the aquatic ecosystem.

6. Activities designed to enhance fish and aquatic habitat, wildlife, water quality, or recreation shall be mutually compatible to assure long-term maintenance of these resource values.

7. Fisheries habitat and watershed improvement projects to rehabilitate impacted areas will have priority over improvement projects that involve manipulation of natural conditions.

8. Utility corridors will avoid use of riparian areas except at crossings.

9. Riparian vegetation, including overstory tree cover, will be left along water bodies as needed to provide shade, maintain streambank stability, desirable pool quality and quality for aquatic organisms, and promote filtering of overland flows.

10. All management activities, especially those that involve earth moving, will be designed to minimize impacts on water quality and other riparian values. Project prescriptions will be developed by an interdisciplinary team, including specialists in soils, hydrology, engineering, wildlife and fisheries biology, and silviculture.

11. Insect and disease detection surveys and evaluations will be accomplished annually. Emphasis will be placed on evaluating hazard potential and determining if efforts are needed to prevent or control losses. These efforts may include: site specific removal of highly susceptible, heavily infected, or infested individual trees.

12. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs require road access.

13. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

14. Construction equipment service areas will not be located in this Management Area.

15. Road drainage features will be inspected and maintained in the fall to insure that they will be able to handle spring snowmelt.

16. Roads will be designed to provide low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before removal.

17. Mineral material sources may be established and permits issued in those locations where such developments will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Timber Practices:

18. Log landings or decking areas will be permitted in this Management Area only if the need is justified in an environmental assessment.

19. Timber harvest generally includes varying proportions of shelterwood and selection systems from 50 percent shelterwood/50 percent selection to 100 percent selection, depending on habitat group, physical site conditions, and resource objectives.

Aquatic Environment and Fish Habitat Practices:

20. Streams that contain pure westslope cutthroat trout will be managed specifically for that subspecies.

Minerals Practices:

21. The following oil and gas lease prescriptions are applicable to this Management Area: 2, 2a, 3, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Fire Practices:

22. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes. Wildfires will be confined, contained or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X. Supression methods will generally employ the use of hand tools, rather than heavy equipment.

Road Practices:

23. Roads will be located to cross rather than to parallel streams in this area. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

24. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

25. When flow in a streamcourse is temporarily diverted to accommodate construction or other activities, flow will be restored to the natural course as soon as practical prior to a major runoff season.

26. Riprap or other erosion control activities will be planned and coordinated with the Forest hydrologist and fisheries biologist and be accomplished during the low flow season and will consider possible downstream consequences of activity.

Visual Quality Practices:

27. Management activities will be designed to meet the inventoried visual quality objective as seen from viewpoints contained on the Sensitivity Level maps. Both Sensitivity Level maps and Inventory maps are on file. Exceptions may be made when an interdisciplinary team identifies the need to protect other resource values and the resulting VQO is no more than one level below the inventoried visual quality objective.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special Standards will also apply.

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special-use permits may be permitted, however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on grade, slope steepness and soil condition.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project work related use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big-game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eliminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: 1) snowmelt period - early April to late June; and 2) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Wildlife Habitat Improvement	Acres	0	0
Fish Habitat Improvement	Acres	46	0
T&E Habitat Improvement	Acres	0	0
Range Improvement	Acres	0	0
Allotment Management Plan	Plans	0	0
Noxious Weed Control	Acres	145	460
Soil Inventory	M Acres	1.26	0
Land Exchange	Acres	0	0
Minerals Management	Cases	2	2
Total Timber Volume Offered*	MMBF	1.5	1.5
Clearcut	Acres	0	0
Shelterwood	Acres	0	0
Selection	Acres	0	0
Commercial Thin	Acres	0	0
Fuels Management (FFP)	Acres	105	105
Trail Construction/Reconstruction	Miles	0	0

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* Estimate of unregulated volume; refer to Timber Appendices.

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-3, 1-4, 2-2, 2-3, 4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

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MANAGEMENT AREA 14

28,762 Acres

A. Description

This Management Area contains the same kind of lands as Management Area 13 except that it is within existing livestock grazing allotment, and 44 percent is classified as suitable, 56 percent classified as unsuitable for timber production.

Many Forest roads are located in this Management Area; new access will be constrained but may be allowed to cross if total resource needs require. Public access may be restricted based on the Forest Travel Plan.

B. Goals

1. Manage riparian areas to maintain and enhance their value for wildlife, recreation, forage, fishery and aquatic habitat, and water quality, while maintaining livestock grazing that is compatible with the above resources.
2. Provide opportunities to improve water quality, minimize erosion, and strengthen or protect streambanks through specifically prescribed vegetation manipulation and/or structural means.
3. Provide opportunities to improve fisheries and wildlife habitat through specifically prescribed vegetative manipulation and/or structural means.
4. Provide for healthy stands of timber and manage timber to give preferential consideration to riparian-dependent species on that portion of the Management Area classified as suitable for timber production.

C. Standards

This Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

The Management Area Standards for Management Area 13 (with the exception of item number 1) applies to this management area with the following additions:

1. Areas determined to be unsuitable for livestock grazing through the allotment analysis process and monitoring and evaluation items 2-2, 2-3, 4-2, 4-3 will be reconsidered for reallocation to Management Area 13 through the Forest Plan ammendment or revision process.
2. Allotment management plans will be developed for all grazing allotments by 1990.
3. Grazing systems developed for riparian vegetation must be responsive to the multiresource value of riparian vegetation and the effects of grazing on all forms of riparian vegetation, including those forms of vegetation not normally assessed during range analysis such as shrubs.

4. Range analysis must provide a quantitative assessment of all forms of vegetation that may be influenced by grazing, including shrubs.

5. Concentration of livestock in riparian areas will be prevented through development of range systems and structural improvements.

6. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

7. Where use of riparian areas by livestock are causing downward trends in the type or density of vegetation, soil compaction, streambank stability, or long-term water quality degradation, the allotment management plan will be revised to reverse those trends to achieve good conditions within 5 years.

8. Mineral material sources may be established and permits issued in those locations where such developments will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

9. The following utilization standards apply to livestock grazing in this Management Area.

Grazing Utilization for Riparian Vegetation*

	Grazing System		
	Continuous	Deferred	Rest Rotation
1. 1/ Poor or Fair Condition or Units Needing Improvement:			
Shrub Utilization (Grazed Species)	20%	25%	30%
Bluegrass Utilization	15-50% 3" stubble ht	45-55% 2" stubble ht	70% 1" stubble ht
Elk Sedge Utilization	15%	15%	35%

(Footnotes on next page.)

Grazing Utilization for Riparian Vegetation* (Continued)

	Grazing System		
	Continuous	Deferred	Rest Rotation
2. 2/ Good or Excellent Condition or Units Needing Maintenance:			
Shrub Utilization	40%	45%	65%
Bluegrass Utilization	50-60% 2" stubble ht	65% 1-1/2" stubble ht	70% 1" stubble ht
Elk Sedge Utilization	35%	35%	35%

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* Developed from Forest Service Handbook 2209.21, R-1, Chapter 600 (5/79) and Malheur National Forest Grazing Utilization Standard and from several Forest Service Range/Wildlife staff officers from Region 6. Forest Service Handbook 2209.21, R-1, Chapter 633 (5/79) will prevail if conflicts arise on utilization standards for grasses.

1/ Poor/Fair Forage Condition or Units Needing Utilization Improvement for Other Resources. Units where less than 60 percent of stream surface is shaded from June to September, less than 80 percent of streambank length is stable or more than 15 percent of stream substrate is covered by inorganic sediment, shrubs have less than good reproduction or vigor, or where shrub form class is hedged or shows form changes due to grazing (e.g., "lollipop" shaped).

2/ Good/Excellent Forage Condition or Units Needing Maintenance for Other Resources. Units where 60 percent or more of the stream surface is shaded from June to September, more than 80 percent of streambank length is stable, less than 15 percent of stream substrate is covered by inorganic sediment, shrubs have good reproduction and vigor, and shrub form class does not indicate hedging or form modification due to grazing.

Minerals Practices:

11. The following oil and gas lease prescriptions are applicable to this management area: 2, 2a, 3, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Wildlife Habitat Improvement	Acres	0	0
Fish Habitat Improvement	Acres	0	0
T&E Habitat Improvement	Acres	0	0
Range Improvement	Acres	285	285
Allotment Management Plan	Plans	1	1
Noxious Weed Control	Acres	1283	750
Soil Inventory	M Acres	134	0
Land Exchange	Acres	0	0
Minerals Management	Cases	2	2

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Mangement Area are described in Table 5.1.

1-3, 1-4, 2-2, 2-3, 4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 15

282 Acres

A. Description

This Management Area consist mainly of lands that are Habitat Type 0 (open grassland) and have slopes less than 40 percent. Most of this Management Area occurs within livestock grazing allotments and currently provides livestock grazing opportunities. Roads may be allowed to pass through this Management Area to access other areas or for the development of mineral resources.

B. Goals

Provide for increasing or at least maintaining available forage for livestock grazing while providing for other resource values.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Tree removal will be limited to that required to eliminate safety hazards or permit construction or expansion of facilities. The Management Area is classified as unsuitable for timber production.

2. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

3. Roads may be constructed to provide access to adjacent areas. Roads may be permitted for mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and is the next logical step in the development of the mineral resource. The necessary structures will be installed as part of the road construction to prevent cattle drift.

4. Management practices will follow guidelines for the Modification visual quality objective. The impacts of management activities will be visually assessed from the nearest viewpoints contained in the Sensitivity Level maps on file.

5. Mineral material sources may be established and permits issued in those locations where such developments will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Range Practices:

6. Livestock grazing improvements such as fences and water developments and practices such as salting and rest rotation management may be used to intensify livestock grazing management.

7. All areas within allotments that consistently show resource damage or abuse will be rehabilitated or fenced out if conflicts cannot be resolved.

Timber Practices:

8. Salvage of dead, dying, or high hazard trees is permitted, to prevent disease and insect population buildup. Stand manipulation to prevent losses will not be practiced.

Minerals Practices:

9. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 3, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Range Improvement	Acres	200	200
Allotment Management Plan	Plans	2	0
Noxious Weed Control	Acres	14	6
Soil Inventory	M Acres	0	0

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 16

678,214 Acres

A. Description

Management Area 16 consists of lands of varying physical environments as determined by soil, slope, aspect, elevation, physiographic site, and climatic factors, which are suitable for timber management. Habitat Groups 1 through 5 with sensitive to nonsensitive soils are represented in this Management Area.

Within this area are the channels, banks, and lands immediately adjacent to first- and some second-order streams. While they provide limited, if any, fish habitat, they are the headwater streams where high quality water first surfaces to be transmitted through the entire stream system.

Portions of the Lewis and Clark National Historic Trail are located within this Management Area on the Missoula Ranger District. Refer to the Forest Plan map for location.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

An extensive road system is in place and will be further developed for Forest management. The roads will be open or closed to public use as determined by the Forest Travel Plan. The majority of existing major collector roads and some future major collector roads will be left open while minor collector and local roads will be open to a lesser degree and often only on an intermittent basis.

B. Goals

1. Provide for healthy stands of timber and optimize timber growing potential.
2. Develop equal distribution of age classes to optimize sustained timber production.
3. Provide for dispersed recreation opportunities, wildlife habitat, and livestock use.
4. Maintain water quality and stream stability.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. The permissibility of livestock grazing will be determined using acceptable range evaluation procedures. Fencing or temporary herding procedures will be used to protect regeneration. The number of livestock will be reduced or relocated as the amount of available forage declines as new stands develop.

2. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.

3. The Management Area is classified as suitable for timber production.

4. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

5. Yarding methods will be used that minimize or eliminate soil disturbance in the riparian zone.

6. Project plans will incorporate considerations for elk summer habitat, deer/elk winter range management, and the unmapped portions of Management Area 26 where those values are present.

7. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

8. Mineral materials permits will be considered on a case-by-case basis, and may be issued if they do not conflict with the management goals for the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

9. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

10. Insect and disease detection surveys and evaluations will be conducted annually. Using approved integrated pest management techniques, efforts aimed at preventing or controlling losses from outbreak populations will be necessary at times. These efforts will require removal of highly susceptible, heavily infected, or infested individual trees or stands where this is compatible with other resource objectives. Emphasis will be placed on prevention through timber stand improvement.

11. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs dictate the necessity for roads.

12. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

13. Construction equipment service areas will not be located in riparian zones in this management area.

14. Roads will be designed to provide low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before removal.

15. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

16. Management practices will follow guidelines for the Modification or Maximum Modification visual quality objective. Modification will normally be assigned to foreground and middleground visible from Sensitivity Level 2 viewpoints. Background and areas not seen from these viewpoints will be assigned Maximum Modification. Maps of these viewpoints, guidelines, and distance zones are on file and must be consulted to determine the visual quality objective.

Recreation Practices:

17. The Forest cultural resource and recreation specialists will be consulted about mitigation measures to protect the values associated with the Lewis and Clark National Historic Trail as part of the environmental analysis process for projects within the foreground viewing area from this trail.

Timber Practices:

18. Timber harvest generally includes varying proportions of clearcutting and shelterwood systems, from 80 percent shelterwood/20 percent clearcut, to 90 percent clearcut/10 percent shelterwood, depending on habitat group, physical site conditions, and silvicultural objectives.

19. Provide for regeneration of a mixture of species with the emphasis on maintaining the components of ponderosa pine and western larch commonly found in naturally occurring stands.

20. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species.

21. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 2b, 3, 3b, 3c, 3e, 3f, 3g, 3h, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

22. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

23. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

24. Roads will be constructed as needed to meet the management objectives of the area. Estimated average road densities are: 0 to 40 percent slope = 5.6 miles/square mile; 40 percent plus slope = 6.7 miles/square mile.

25. Prescribed burning will be used to accomplish slash disposal, site preparation, silvicultural, ecological, wildlife, and range objectives. In habitat groups where fire is not a useful tool, logging/scattering trampling, isolation of separate cutting units, fuel break construction, and fuelwood utilization will be used to reduce fuel accumulations, reduce hazards, and prepare sites for regeneration. Slash disposal will be complete enough to provide for free movement of deer and elk or in the case of isolated units, small enough to avoid impacting major elk/deer through paths. Prescribed burning for natural vegetation enhancement will be prescribed by a certified silviculurist. Use of prescribed fire for hazard reduction and site preparation will be based on an economic analysis. Utilize the most cost effective alternative that will meet the required resource objectives.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special Standards will also apply.

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc. are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special use permits may be permitted; however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on grade, slope steepness and soil condition.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project work related use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eliminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: 1) snowmelt period - early April to late June; and 2) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Allotment Management Plan	Plans	2	0
Soil Inventory	M Acres	31.5	0
Noxious Weed Control	Acres	273	9745
Minerals Management	Cases	65	59
Land Exchange	Acres	1174	14
Total Timber Volume Offered*	MMBF	65.6	116.1
Clearcut	Acres	2012	4936
Shelterwood	Acres	6405	7567
Selection	Acres	0	0
Commercial Thin	Acres	200	0
Silvicultural Exams	M Acres	17.9	24.6
Reforestation (Appropriated Funds)	Acres	1647	7437
Reforestation (K-V)	Acres	2471	5748
Tbr. Std. Imp. (Appropriated Funds)	Acres	773	0
Tbr. Std. Imp. (K-V)	Acres	0	773
Landline Location	Miles	30.8	47.0
Fuels Management (BD)	Acres	3397	9051
Fuels Management (FFP)	Acres	0	0
Road Construction/Reconstruction			
Arterial	Miles	0	0
Collector	Miles	66.6	49.8
Local	Miles	79.5	76.7
Trail Construction/Reconstruction	Miles	11.1	11.1

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* Acres by harvest system are estimates, final determination is made by a certified silviculturist using site specific information. Refer to Appendix C-3, Vegetation Management Practices, for a further discussion.

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-2, 3-1 thru 3-10, 3-12 thru 3-15,
4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 17

50,435 Acres

A. Description

Management Area 17 consists of lands like those in Management Area 16 except that slopes are generally over 60 percent and are best managed from an economic criteria with a low road density.

An extensive road system is in place and may be further developed for Forest management. The roads will be open or closed to public use as determined by the Forest Travel Plan. The majority of existing major collector roads and some future major collector roads will be left open while minor collector and local roads will be open to a lesser degree and often only on an intermittent basis.

B. Goals

1. Provide for healthy stands of timber and optimize timber growing potential.

2. Develop equal distribution of age classes to optimize sustained timber production.

3. Provide for maintenance of soil productivity and other resource values.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. The permissibility of livestock grazing will be determined using acceptable range evaluation procedures. Fencing or temporary herding procedures will be used to protect regeneration. The number of livestock will be reduced or relocated as the amount of available forage declines as new stands develop.

2. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trailhead facilities. Developed campgrounds and similar facilities will not be constructed.

3. The Management Area is classified as suitable for timber production.

4. During the first decade, harvest will occur on minor portions of this Management Area which are inclusions in timber sales on components of Management Area 16.

5. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

6. Project plans will incorporate considerations for elk summer habitat and deer/elk winter range management where those values are present.

7. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

8. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the management area.

   Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

9. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

10. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

11. Insect and disease detection surveys and evaluations will be conducted annually. Emphasis will be placed on timber stand improvement. Using approved integrated pest management techniques, efforts aimed at preventing or controlling losses from outbreak populations will be necessary at times. These efforts may include removal of highly susceptible, heavily infected, or infested individual trees or stands where this is compatible with other resource objectives.

12. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs dictate the necessity for roads.

13. Roads will be constructed as needed to meet the management objectives of the area. Estimated average road density will be 1.5 miles per square mile.

14. Construction equipment service areas will not be located in riparian zones in this Management Area.

15. Roads will be designed to provide low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before removal.

16. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

Timber Practices:

17. Harvest systems employed include from 25 percent clearcut/75 percent shelterwood, to 90 percent clearcut/10 percent shelterwood, dependent on habitat group, site conditions, and silvicultural objectives.

18. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species.

19. Provide for regeneration of a mixture of species with emphasis on maintaining the percent of ponderosa pine and western larch common in naturally occurring stands.

Minerals Practices:

20. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 2b, 3, 3c, 3g, 3h, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

21. In third-order watersheds, the rate of new road construction or reconstruction in any one year will be limited to the rate at which existing roads become stabilized (sediment yield is below first 3-year average yield) either naturally or through project rehabilitation.

22. In critical situations, such as slumpy areas, steep draw crossings, bogs, seeps, or other wet areas, no more than 1 acre of erodible and untreated surface area per road project (slope area, exclusive of the road surface itself) will be exposed at one time by excavation, borrow, or fill. Where, due to the need for extensive end hauling, it is not possible to stay within the 1-acre limit, treatment measures will be installed to reduce the vulnerability to high intensity storms.

23. Effective permanent soil surface protection will be installed as soon as practical once the roadway is constructed to grade; however, all treatment will be completed during the same construction season in which the disturbance was created.

24. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

25. System roads will be designed for at least the 60-year storm or runoff event. Drainage in nonsystem roads will provide for at least the 50-year storm or runoff event. Natural drainageways will be reopened and road surface outsloped, cross-ditched, and revegetated within 5 years from construction.

26. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

27. Overland, stream, and subsurface flow of water must be transported across or through the road prisms on the shortest path possible. Water must not be permitted to cause saturation of the road section. Where surface water velocities and concentrations are created that would induce or accelerate surface erosion, dissipation or protective features will be installed.

28. Roads will be located to avoid intercepting subsurface water when at all possible.

29. In those situations where the transportation planning road location encounters areas with mass stability and debris hazards, designs will be approved for construction only after hazard-reducing features or treatments have been included.

Visual Quality Practices:

30. Management practices will follow guidelines for the Modification or Maximum Modification visual quality objective, except where visible from viewpoints specifically recognized as sensitive in the Forest Plan. Modification will normally be assigned to foreground and middleground visible from Sensitivity Level 2 viewpoints. Background and areas not seen from these viewpoints will be assigned a visual quality objective of Maximum Modification. Sensitivity Level maps, guidelines, and distance zones are on file and must be consulted to determine the visual quality objective.

Fire Practices:

31. Prescribed burning will be used to accomplish slash disposal, site preparation, silvicultural, ecological, wildfire, and range objectives. In habitat groups where fire is not a useful tool, logging/scattering trampling, isolation of seperate cutting units, fuel break construction, and fuelwood utilization will be used to reduce fuel accumulations, reduce hazards, and prepare sites for regeneration. Slash disposal will be complete enough to provide for free movement of deer and elk or in the case of isolated units, small enough to avoid impacting major elk/deer through paths. Prescribed burning for natural vegetation enhancement will be prescribed by a certified silviculturist. Planning for use of prescribed fire to reduce hazards and prepare regeneration sites should be based on a cost effective analysis of an alternative that also meets other required resource objectives.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	2.35	0
Minerals Management	Cases	4	4
Noxious Weed Control	Acres	57	356
Land Exchange	Acres	252	5
Total Timber Volume Offered*	MMBF	10.5	9.3
Clearcut	Acres	526	203
Shelterwood	Acres	565	978
Selection	Acres	0	0
Commercial Thin	Acres	0	0
Silvicultural Exams	M Acres	2.6	2.2
Reforestation (Appropriated Funds)	Acres	312	151
Reforestation (K-V)	Acres	469	606
Tbr. Std. Imp. (Appropriated Funds)	Acres	0	0
Tbr. Std. Imp. (K-V)	Acres	0	0
Landline Location	Miles	5.7	3.5
Fuels Management (BD)	Acres	175	489
Fuels Management (FFP)	Acres	0	0
Road Construction/Reconstruction			
Arterial	Miles	0	0
Collector	Miles	8.5	6.3
Local	Miles	0	0
Trail Construction/Reconstruction	Miles	1.1	1.1

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* Acres by harvest system are estimates, final determination is made by a certified silviculturist using site specific information. Refer to Appendix C-3, Vegetation Management Practices, for a further discussion.

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-2, 3-1 thru 3-10, 3-12 thru 3-15,
4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 18

106,271 Acres

A. Description

Management Area 18 consists of lands primarily located at elevations below 5,000 feet on south-facing slopes. These lands are winter range for deer, elk, and bighorn sheep, generally including Habitat Groups 1, 2, and 3 with inclusions of Habitat Group 4. These lands will be managed to attain a proper balance of cover and forage for big game through regulated timber harvest.

Portions of the Lewis and Clark National Historic Trail are located within this Management Area on the Missoula Ranger District. Refer to the Forest Plan map for location.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

An extensive road system is in place and may be further developed for Forest management. The roads will be open or closed to public use as determined by the Forest Travel Plan. The majority of existing major collector roads and some future major collector roads will be left open while minor collector and local roads will be open to a lesser degree and often only on an intermittent basis.

B. Goals

1. Optimize forage production and cover for deer, elk, and bighorn sheep on winter range.
2. Considering the needs of big game, maintain healthy stands of timber and optimize timber growing potential.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will be allowed after all big-game needs have been met. Big-game needs will be based on a determination of average annual use by wintering animals, consistent with anticipated populations.
2. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trailhead facilities. Developed campgrounds and similar facilities will not be constructed.
3. Timber harvest will be employed to improve or maintain big-game winter range. The management area is classified as suitable for timber production.
4. All logging and road building for normal management activities will generally be restricted to the summer and fall months. Mitigating measures will be included in work plans associated with road development for locatable minerals.

5. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

6. Yarding methods will be used that minimize or eliminate soil disturbance in the riparian zone.

7. Retain as a minimum a 50:50 cover:forage ratio. The majority of cover should be thermal cover, that is, trees greater than or equal to 40 feet tall with a crown density greater than or equal to 50 percent.

8. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

9. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

10. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management plan, described in Appendix X.

    To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

11. Insect and disease detection surveys and evaluations will be conducted annually. Using approved integrated pest management techniques, efforts aimed at preventing or controlling losses from outbreak populations will be necessary at times. These efforts may include: removal of highly susceptible, heavily infected, or infested individual trees.

12. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs dictate the necessity for roads.

13. Construction equipment service areas will not be located in riparian zones in this Management Area.

14. Roads will be designed to provide low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before removal.

15. Road construction techniques that provide low sedimentation hazard will be used.

16. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be managed in a manner to keep sedimentation hazard low.

17. Management practices will follow guidelines for the Modification visual quality objective. The impacts of management activities will be visually assessed from the nearest viewpoints contained in the Sensitivity Level maps on file.

Recreation Practices:

18. The Forest cultural resource and recreation specialists will be consulted about mitigation measures to protect the values associated with the Lewis and Clark National Historic Trail as part of the environmental analysis process for projects within the foreground viewing area from this trail.

Timber Practices:

19. Harvest methods range from 100 percent individual tree selection, to 80 percent shelterwood/20 percent clearcut, to 50 percent shelterwood/50 percent clearcut dependent on habitat group and winter range management objectives.

20. The following will be emphasized during the first decade.

    a. Harvest will generally be regeneration cutting on mature sawtimber stands.

    b. Minor amounts of intermediate harvest may occur to meet site-specific requirements.

    c. Precommercial thinning may be used to provide rapid growth for replacement of thermal cover or increase forage.

21. Dead and down trees may be salvaged as constrained by habitat needs of cavity nesting wildlife species.

22. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

Minerals Practices:

23. The following oil and gas lease prescriptions are applicable to this Mangement Area: 1, 1a, 3, 3e, 3f, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

24. Maintain roadside vegetation where possible, especially at established game crossings.

25. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

26. Where needed, fish passage will be provided for instream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

27. Roads will be constructed as needed to meet the management goals and objectives of the area. Estimated average road densities are: 0 to 40 percent slope = 5.6 miles per square mile; 40 percent plus slope = 6.7 miles per square mile. Estimated average road open density will be 0.4 mile or less of open road per square mile.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special Standards will also apply.

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special-use permits may be permitted, however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on grade, slope steepness and soil condition.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project work related use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eleminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: 1) snowmelt period - early April to late June; and 2) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Wildlife Habitat Improvement	Acres	184	184
Fish Habitat Improvement	Acres	0	0
T&E Habitat Improvement	Acres	0	0
Range Improvement	Acres	0	0
Allotment Management Plan	Plans	0	0
Noxious Weed Control	Acres	84	718
Soil Inventory	M Acres	4.94	0
Land Exchange	Acres	335	4
Minerals Management	Cases	12	11
Total Timber Volume Offered*	MMBF	4.4	0.5
Clearcut	Acres	123	0
Shelterwood	Acres	161	123
Selection	Acres	0	0
Commercial Thin	Acres	0	0
Silvicultural Exams	M Acres	16.7	2.5
Reforestation (Appropriated Funds)	Acres	79.9	15.4
Reforestation (K-V)	Acres	119.8	61.8
Tbr. Std. Imp. (Appropriated Funds)	Acres	0	0
Tbr. Std. Imp. (K-V)	Acres	0	0
Landline Location	Miles	2.0	0.2
Fuels Management (BD)	Acres	171	34

(Continued on following page.)

MA 18
(Continued)

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Fuels Management (FFP)	Acres	412	412
Road Construction/Reconstruction			
Arterial	Miles	0	0
Collector	Miles	1.1	0.5
Local	Miles	2.7	0.8
Trail Construction/Reconstruction	Miles	0	0

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* Acres by harvest system are estimates, final determination is made by a certified silviculturist using site specific information. Refer to Appendix C-3, Vegetation Management Practices, for a further discussion.

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-2, 3-1 thru 3-10, 3-12 thru 3-15,
4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 19

82,170 Acres

A. Description

This Management Area consists of predominantly shrub lands located at elevations below 5,000 feet on south-facing slopes. These areas are identified as being important deer, elk, and mountain sheep winter range. This land is generally in Habitat Group 0, with inclusions of Groups 1, 2, 3, and 4, and unsuitable for regulated timber harvest. Historically, wildfire has played a major role in providing for the needs of big game in areas represented in this Management Area.

Portions of the Lewis and Clark National Historic Trail are located within this Management Area on the Missoula Ranger District. Refer to the Forest Plan map for location.

Roads may be allowed to pass through this Management Area to access other areas or for the development of mineral resources.

B. Goals

1. Optimize deer, elk, and sheep winter range.
2. Provide opportunities for dispersed recreation.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will be allowed after all big-game needs have been met. Big-game needs will be based on a determination of average annual use by wintering animals, consistent with anticipated populations.

2. Developed recreation facilities will not be constructed. However, dispersed trail-oriented, nonmotorized recreation is encouraged. Dispersed recreation facilities such as trails and trail heads may be constructed as needed.

3. Tree removal will be limited to that required to eliminate safety hazards, permit road or trail construction, or meet other management objectives. The Management Area is classified as unsuitable for timber production.

4. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

5. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

6. Areas will be evaluated periodically for significant insect and disease problems such as mountain pine beetle. Buildups of minor insects and most disease agents do not normally pose threats to adjacent lands and effects of these will be accepted as naturally occuring phenomena.

Recreation Practices:

7. The Forest cultural resource and recreation specialists will be consulted about mitigation measures to protect the values associated with the Lewis and Clark National Historic Trail as part of the environmental analysis process for projects within the foreground viewing area from this trail.

Minerals Practices:

8. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 2b, 3, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

9. Roads will not be constructed for surface management objectives within this Management Area. Roads may be constructed through segments of this Management Area to provide access to other management areas. Roads will be permitted for special land uses or for mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and it is the next logical step in the development of the mineral resource.

10. Maintain roadside vegetation where possible, especially at established game crossings.

Visual Quality Practices:

11. Management practices will follow the guidelines for the Modification visual quality objective except where visible from viewpoints specifically recognized as sensitive in the Forest Plan. Modification will normally be assigned to foreground and middle ground visible from Sensitivity Level 2 viewpoints. Sensitivity Level maps and distance zones are on file and must be consulted to determine the visual quality objective.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Wildlife Habitat Improvement	Acres	1268	1268
Fish Habitat Improvement	Acres	0	0
T&E Habitat Improvement	Acres	0	0
Range Improvement	Acres	0	0
Allotment Management Plan	Plans	0	0
Noxious Weed Control	Acres	65	603
Soil Inventory	M Acres	3.82	0
Land Exchange	Acres	252	3
Minerals Management	Cases	6	5
Fuels Management (FFP)	Acres	319	319

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 20

71,716 Acres

A. Description

Management Area 20 consists of a mixture of low to high elevation lands on the Seeley Lake, Missoula, and Plains/Thompson Falls Ranger Districts. This Management Area represents 20 percent of all essential grizzly bear habitat on the Forest and is considered suitable for timber harvest. (The remaining 80 percent is located in Management Areas 11, 12, and 20a.) Management Area 20 is a combination of: 1) grizzly bear feeding and denning components; 2) cover area to allow the grizzly bear to avoid human-induced mortality; and 3) adequate space to satisfy the grizzly bear's territorial needs. All habitat groups are represented in this Management Area.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

A portion of the Morrell Falls National Trail (No. 30) is located within this Management Area, on the Seeley Lake Ranger District. Refer to the proposed Forest Plan map for location.

B. Goals

1. Optimize habitat conditions and minimize mortality factors consistent with the national goal to recover the grizzly bear to nonthreatened status.

2. Optimize timber growing potential within the constraints of the grizzly bear recovery goal.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Developed recreation facilities will not be constructed. Dispersed recreation activities are acceptable if they do not increase the risk of grizzly bear mortality.

2. Employ logging systems that require minimal amounts and standards of roading.

3. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to optimize grizzly bear habitat. Where compatable, manage to maintain cover and vegetation for trout habitat, streambank stability, and filtering of overland flows.

4. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

5. Construction equipment service areas will not be located in riparian zones in this Management Area.

6. Mineral material permits will be considered on a case-by-case basis and may be issued if they do not conflict with management goals for the Management Area. Mitigating measures will be included in work plans associated with locatable minerals.

7. Slash treatment and site scarification will be done in such a way as to optimize the grizzly bear food response potential.

8. Insect and disease detection and evaluations will be conducted annually. Using approved integrated pest management techniques, efforts aimed at preventing or controlling losses may be necessary at times to prevent grizzly bear habitat. These efforts may require removal of highly susceptible, heavily infected, or infested individual trees.

9. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

10. Road conctruction will be limited to periods during which the grizzly bear would not be expected to use the area.

11. Roads will be managed to minimize human-caused grizzly bear mortality. In general, few roads will be left open to public use within this Management Area. In some cases, where grizzly use is very seasonal and predictable, seasonal restrictions will be used to protect the bear.

12. Roads will be designed to provide low risk of drainiage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before romaval.

13. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

Range Practices:

14. Recreational packstock and cattle grazing may be permitted at a level which does not create a significant risk of human-caused qrizzly bear mortality. Allotment management plans and permits will be modified as necessary to insure that seasons of use and degrees of utilization are compatable. Grazing permits issued in this Management Area will include a clause which will provide for removal of livestock from the area as serious conflicts develop during the grazing season.

Timber Practices:

15. Timber harvest will not create runoff increases likely to result in channel degradation. All resoration treatment will be completed during the same construction season in which the disturbance was created.

16. Dead and down trees may be salvaged as constrained by habitat needs of cavity nesting wildlife species.

Wildlife Practices:

17. Schedule timber harvest activities to optimize short- and long-term habitat conditions such as feeding areas and hiding cover for the grizzly bear. Coordinate timber harvest scheduling with other landowners to reduce man-caused grizzly bear mortality.

18. Modify timber harvest prescriptions adjacent to grizzly bear habitat components (avalanche chutes, wet meadows, etc.) so that the grizzly bear is protected from man-caused mortality, and so that the habitat is maintained or enhanced.

Minerals Practices:

19. The following oil and gas lease prescriptions are applicable to this Management Area: 1,1a,2b,3,3b,5,6,10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

20. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

21. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

Visual Quality Practices:

22. Management practices will follow the guideline for the Retention or Partial Retention quality objective from viewpoints specifically recognized as sensitive. Maps of these viewpoints and involved distance zones are on file and must be consulted to determine the visual quality objective. Where grizzly bear management activities cannot meet these visual quality objectives, departures from these assigned visual quality objectives will be acceptable.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special Standards will also apply.

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special use permits may be permitted; however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on grade, slope steepness and soil condition.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project work related use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eliminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: 1) snowmelt period - early April to late June; and 2) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Wildlife Habitat Improvement	Acres	0	0
Fish Habitat Improvement	Acres	0	0
T&E Habitat Improvement	Acres	0	0
Range Improvement	Acres	0	0
Allotment Management Plan	Plans	0	0
Soil Inventory	M Acres	4.05	0
Noxious Weed Control	Acres	13	13
Land Exchange	Acres	419	5
Minerals Management	Cases	6	5
Total Timber Volume Offered*	MMBF	3.8	1.0
Clearcut	Acres	86	0
Shelterwood	Acres	444	200
Selection	Acres	0	0
Commercial Thin	Acres	0	0
Silvicultural Exams	M Acres	1.3	0.4
Reforestation (Appropriated Funds)	Acres	83.7	25.1
Reforestation (K-V)	Acres	125.6	108.6
Tbr. Std. Imp. (Appropriated Funds)	Acres	0	0
Tbr. Std. Imp. (K-V)	Acres	0	0
Landline Location	Miles	1.7	0.4
Fuels Management (BD)	Acres	206	55
Fuels Management (FFP)	Acres	0	0
Road Construction/Reconstruction			
Arterial	Miles	0	0
Collector	Miles	6.0	4.5
Local	Miles	5.0	1.2
Trail Construction/Reconstruction	Miles	0	0

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* Acres by harvest system are estimates, final determination is made by a certified silviculturist using site specific information. Refer to Appendix C-3, Vegetation Management Practices, for a further discussion.

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-2, 3-1 thru 3-10, 3-12 thru 3-15,
4-1,4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 20a

26,411 Acres

A. Description

Management Area 20a consists of a mixture of a low-to-high elevation lands on the Seeley Lake, Missoula, and Plains/Thompson Falls Ranger Districts. This management area represents 4 percent of essential grizzly bear habitat occurring on the Forest and is considered unsuitable for timber harvest. (The remaining 96 percent is located in Management Areas 11, 12, and 20.) Management Area 20a is a combination of: 1) grizzly bear feeding and denning components; 2) cover area to allow grizzly bear to avoid man-induced mortality; and 3) adequate space to satisfy the grizzly bear's territorial needs. All habitat groups are represented in this Management Area.

B. Goals

Optimize habitat conditions and minimize mortality factors consistent with the national goal to recover the grizzly bear to nonthreatened status.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Developed recreation facilities will not be constructed. Dispersed recreation activities are acceptable if they do not increase the risk of grizzly bear mortality.

2. Tree removal will be limited to that required to eliminate safety hazards, permit road or trail construction, or to provide for vegetative management. The Management Area is classified as unsuitable for timber production.

3. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

4. Areas will be evaluated periodically for significant insect and disease problems such as mountain pine betle. Buildups of minor insects and most disease agents do not normally pose threats to adjacent lands and effects of these will be accepted as naturally occurring phenomena.

5. Existing roads will be managed to minimize human-caused grizzly bear mortality. In general, few roads will be left open to public use within this Management Area. In some cases, where grizzly use is very seasonal and predictable, seasonal restrictions will be used to protect the bear.

6. Mineral material sources may be established and permits issued in those locations where such developments will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Range Practices:

7. Recreational packstock and cattle grazing may be permitted at a level which does not create a significant risk of man-caused grizzly bear mortality. Allotment management plans and permits will be modified as necessary to insure that seasons of use and degrees of utilization are compatable. Grazing permits issued in this management area will include a clause which will provide for removal of livestock from the area if serious conflicts develop during the grazing season.

Wildlife Practices:

8. Schedule prescribed burning activities to optimize short- and long-term habitat conditions for the grizzly bear.
9. The following oil and gas lease prescriptions are applicable to this management area: 1, 1a, 2b, 3, 3b, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

10. Roads may be constructed through segments of this Management Area to provide access to other management areas. Roads will be permitted for special land uses or for mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and it can be demonstrated that the road will not jeopardize the grizzly bear population.
11. Where roads are essential, maintain roadside cover so as to minimize human-caused grizzly bear mortality.

Visual Management Practices:

12. Management practices will follow the guidelines for the Retention or Partial Retention visual quality objective from viewpoints specifically recognized as sensitive in the Forest Plan. Maps of these viewpoints and invloved distance zones are on file and must be consulted to determine the visual quality objective. Where grizzly bear management activities can not meet these visual quality objectives, departures from these assigned visual quality objectives will be acceptable.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Wildlife Habitat Improvement	Acres	8	8
Fish Habitat Improvement	Acres	0	0
T&E Habitat Improvement	Acres	80	62
Noxious Weed Control	Acres	0	5
Soil Inventory	M Acres	0.51	0.0
Fuels Management (FFP)	Acres	278	278

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-2, 3-1 thru 3-10, 3-12 thru 3-15,
4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1,10-1

MANAGEMENT AREA 21

41,303 Acres

A. Description

This Management Area consists of a variety of forested lands representing all elevations, aspects, habitat groups, and growing site conditions. They are located throughout the Forest in such a way as to evenly distribute old age stands of timber for wildlife species dependent on old growth for habitat. Wildlife species are represented by species such as the pileated woodpecker, pine marten, hermit thrush, and goshawk.

Portions of the Skookum Butte (No. 304) and Morrell Falls (No. 30) National Recreation Trails and a portion of Lewis and Clark National Historic Trail are located within this Management Area on the Missoula and Seeley Lake Ranger Districts. Refer to the proposed Forest Plan map for locations.

An extensive road system is in place and will be further developed for Forest management. The roads will be open or closed to public use as determined by the Forest Travel Plan. The majority of existing major collector roads and some future major collector roads will be left open. Minor collector and local roads will be open to a lesser degree and often on an intermittent basis.

B. Goals

1. Provide for old-growth succession in timber stands with an optimum arrangement of habitat components to maintain viable populations of old-growth-dependent wildlife species.
2. Provide opportunities for nonmotorized dispersed recreation.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may be permitted where compatible with old-growth management.
2. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.
3. The management area is classified as suitable for timber production. Timber harvest will be employed to improve or maintain old-growth habitat. Timber stands will be managed on a double rotation basis to provide suitable old-growth habitat.

4. Provide stands at least 30 to 40 acres in size that are decadent, multi-storied, fully stocked, contain snags with dead and down material greater than 15 tons per acre, and contain 15 trees per acre greater than 20 inches d.b.h. These stands should be well distributed over the Forest.

5. Any activities that occur in the portion of this area that is in the essential grizzly bear habitat must be compatible with habitat management of the species.

6. Mineral materials permits will not be permitted.

7. Wildfires will be controlled to protect old-growth qualities and resource objectives associated with this type.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

Recreation Practices:

8. The Forest recreation specialist will be consulted about mitigation measures to protect the values associated with the National Historic and Recreation Trails (identified in the Management Area description) as part of the environmental analysis process for projects within the foreground viewing area from the trails.

Timber Practices:

9. Harvest methods will range from 70 percent clearcut/30 percent selection, to 100 percent selection, depending on habitat group, physical site conditions, and resource needs.

Minerals Practices:

10. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 3, 3a, 3c, 3g, 3h, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

11. Road construction activities will not be permitted between March 15 and July 15. Mitigating measures will be included in work plans associated with road development for minerals.

Visual Quality Practices:

12. Management practices will follow guidelines for the Modification visual quality objective except where visible from viewpoints specifically recognized as sensitive. Maps of these viewpoints and involved distance

zones are on file and must be consulted to determine the visual quality objective. If the visual quality objective is Modification, it will be met from the nearest viewpoints contained in Sensitivity Level maps on file.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Wildlife Habitat Improvement	Acres	140	140
T&E Habitat Improvement	Acres	0	0
Soil Inventory	M Acres	1.92	0
Noxious Weed Control	Acres	15	15
Land Exchange	Acres	42	0
Minerals Management	Cases	3	3
Total Timber Volume Offered*	MMBF	2.2	2.2
Clearcut	Acres	0	0
Shelterwood	Acres	0	0
Selection	Acres	0	0
Commercial Thin	Acres	0	0
Fuels Management (FFP)	Acres	161	161

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* Estimate of unregulated volume; refer to Timber Appendices.

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-3, 1-4, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 22

13,898 Acres

A. Description

Management Area 22 consists of timbered lands located primarily at elevations below 5,000 feet, on south-facing slopes, and with high visual sensitivity. These lands are important winter ranges for deer, elk, and bighorn sheep, and generally include Habitat Groups 1, 2, and 3 with inclusions of Group 4. The lands are adjacent to or visible from major roads and trails, communities, and other high use areas.

Portions of the Lewis and Clark National Historic Trail are located within this Management Area on the Missoula Ranger District. Refer to the Forest Plan map for location.

An extensive road system will be developed in this Management Area. The location and density will be restricted to meet visual quality objectives. Roads will be either open or closed to public use as determined by the Forest Travel Plan.

B. Goals

1. Achieve the visual quality objective of Retention.
2. Provide optimal cover:forage ratios for deer, elk, and bighorn sheep winter range within the constraints imposed by Goal 1.
3. Maintain healthy stands of timber within the constraints imposed by Goals 1 and 2.

C. Standard

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will be allowed after all big-game needs have been met. Big-game needs will be based on a determination of average annual use by wintering animals, consistent with anticipated populations.
2. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.
3. Timber harvest will be employed to improve or maintain big-game winter range. The Management Area is classified as suitable for timber production.
4. Yarding methods will be used that minimize or eliminte soil disturbance in the riparian zone.

5. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

6. Retain as a minimum a 50:50 cover:forage ratio. The majority of cover should be thermal cover, that is, trees greater than or equal to 40 feet tall with a crown density greater than or equal to 50 percent.

7. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

8. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

9. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

   Suppression methods will generally employ the use of hand tools rather than the use of heavy equipment.

10. Insect and disease detection surveys and evaluations will be conducted annually. Using integrated pest management techniques, efforts aimed at preventing or controlling losses from outbreak populations will be necessary at times. These efforts may include removal of highly susceptible, heavily infected, or infested individual trees.

11. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs dictate the necessity for roads.

12. Construction equipment service areas will not be located in riparian zones in this Management Area.

13. Roads will be designed to provide low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before removal.

14. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

Recreation Practices:

15. The Forest cultural resource and recreation specialists will be consulted about mitigation measures to protect the values associated with the Lewis and Clark National Historic Trail as part of the environmental analysis process for projects within the foreground viewing area from this trail.

Timber Practices

16. Harvest methods range from 100 percent individual tree selection to 85 percent selection/15 percent shelterwood, to 70 percent selection/30 percent shelterwood, to 80 percent shelterwood/20 percent clearcut depending on habitat group, physical site conditions, winter range management objectives, visual quality objective, and silvicultural objectives.

17. The following will be emphasized during the first decade.

    a. Timber harvest will be limited and generally be by selection cutting.

    b. Intermediate harvests will generally not occur except when necessary to meet visual or wildlife goals.

    c. Precommercial thinning is not expected to occur unless needed to meet wildlife or visual goals.

18. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species.

19. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

Minerals Practices

20. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 2b, 3, 3c, 3g, 3h, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

21. Maintain roadside vegetation where possible, especially at established game crossings.

22. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

23. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

24. Roads will be constructed as needed to meet the management objectives of the area. Estimated average road density are: 0 to 40 percent slope = 4.6 miles/square mile; 40 to 60 percent slope = 4.8 miles/square mile; 60 percent plus = 2.8 miles/square mile. Actual project-level road densities will vary depending upon the following factors: a) habitat type and associated screening and revegetative recovery time; b) staging of road construction; c) silvicultural systems employed, together with amount of screening removed each entry; d) logging systems used; and e) amount and type of revegetation measures to be taken.

25. Road construction for normal management activities will generally be limited to the summer and fall months. Road clearing limits, road widths, and road densities will be minimized as needed to meet the visual quality objective. Special mitigating measures, including shrub and tree seeding and planting, fertizilier applications, mulching, and endhauling may be required. Mitigating measures will be included in work plans associated with road development for locatable minerals, timber sales, and other management activities.

Visual Quality Practices:

26. The area will be managed to meet visual quality objective of Retention from the viewpoints specifically recognized as sensitive. Maps of these viewpoints are on file in the Supervisor's Office and on the Ranger Districts and will be consulted to visually assess the impacts of management activities. Temporary departures from this visual quality objective may be acceptable under the following conditions: a) long-term visual values require such an action; or b) essential road access into other management areas is impossible without this temporary departure.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Wildlife Habitat Improvement	Acres	0	0
Fish Habitat Improvement	Acres	0	0
T&E Habitat Improvement	Acres	0	0
Range Improvement	Acres	0	0
Allotment Management Plan	Plans	0	0
Noxious Weed Control	Acres	5	37
Soil Inventory	M Acres	0.65	0
Land Exchange	Acres	0	0
Minerals Management	Cases	1	1
Total Timber Volume Offered*	MMBF	1.3	1.1
Clearcut	Acres	0	0
Shelterwood	Acres	0	0
Selection	Acres	556	556
Commercial Thin	Acres	0	0
Silvicultural Exams	M Acres	0.6	0
Reforestation (Appropriated Funds)	Acres	46.0	0
Reforestation (K-V)	Acres	69.0	0
Tbr. Std. Imp. (Appropriated Funds)	Acres	0	0
Tbr. Std. Imp. (K-V)	Acres	0	0
Landline Location	Miles	1.0	0
Fuels Management (BD)	Acres	111	0
Fuels Management (FFP)	Acres	54	54
Road Construction/Reconstruction			
Arterial	Miles	0	0
Collector	Miles	1.5	1.1
Local	Miles	1.6	0
Trail Construction/Reconstruction	Miles	0.2	0.2

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* Acres by harvest system are estimates, final determination is made by a certified silviculturist using site specific information. Refer to Appendix C-3, Vegetation Management Practices, for a further discussion.

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this management area are described in Table 5.1.

1-1, 1-2, 1-6, 3-1 thru 3-10, 3-12 thru 3-15,
4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 23

55,513 Acres

A. Direction

Management Area 23 consists of timbered lands located primarily at elevations below 5,000 feet on south-facing slopes, and with medium visual sensitivity. These lands are important winter ranges for deer, elk, and bighorn sheep, and generally include habitat groups 2, 3, and 4. The lands are adjacent to or visible from major roads and trails, communities, and other high use areas.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

An extensive road system will be developed in this Management Area but the location and density will be restricted to meet visual quality objectives. Roads will be either open or closed to public use as determined by the Forest Travel Plan.

B. Goals

1. Achieve the visual quality objective of Partial Retention.
2. Provide optimal cover:forage ratios for deer, elk, and bighorn sheep winter range within the constraints of Goal 1.
3. Maintain healthy stands of timber within the constraints imposed by Goals 1 and 2.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will be allowed after big-game needs have been met. Big-game needs will be based on a determination of average annual use by wintering animals, consistent with anticipated populations.
2. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facitilities will not be constructed.
3. Timber harvest will be employed to improve or maintain big-game winter range. The Management Area is classified as suitable for timber production.
4. Yarding methods will be used that minimize or eliminate soil disturbance in the riparian zone.
5. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

6. Retain as a minimum a 50:50 cover:forage ratio. The majority of cover should be thermal cover, that is, trees greater than or equal to 40 feet tall with a crown density greater than or equal to 50 percent.

7. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

8. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

9. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

10. Insect and disease detection surveys and evaluations must be conducted annually. Using integrated pest management techniques, efforts aimed at preventing or controlling losses from outbreak populations will be necessary at times. These efforts may include removal of highly susceptible, heavily infected, or infested individual trees.

11. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs dictate the necessity for roads.

12. Construction equipment service areas will not be located in riparian zones in this Management Area.

13. Roads will be designed to provide low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be placed before removal.

14. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

Timber Practices:

15. Harvest methods range from 100 percent individual tree selection, to 80 percent shelterwood/20 percent clearcut, to 60 percent shelterwood/40 percent clearcut depending on habitat group, physical site conditions,

winter range management objectives, visual quality objective, and silvicultural objectives.

16. The following will be emphasized during the first decade.

    a. Regeneration harvest will occur principally on Habitat Groups 2 and 3 with only minor harvest on Habitat Group 4.

    b. Intermediate harvest will generally not occur unless necessary to meet wildlife and visual goals.

    c. Precommercial thinning is not excpected to occur unless needed to meet wildlife or visual goals.

17. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species.

18. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

Minerals Practices:

19. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 3, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

20. Maintain roadside vegetation where possible, especially at established game crossings.

21. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

22. Where needed, fish passage will be provided for in stream crossings by maintaining flow velocities and channel gradients existing at the crossing site.

23. Roads will be constructed as needed to meet the management objectives of the area. Estimated average road densities are: 0 to 40 percent slope = 5.6 miles/square mile; 40 to 60 percent slope = 5.9 miles/square mile; 60 percent plus = 4.2 miles/square mile. Actual project-level road densities will vary depending upon the following factors: a) habitat type and associated screening and revegetative recovery time; b) staging of road construction; c) silvicultural systems employed, together with amount of screening removed each entry; d) logging systems used; and e) amount and type of revegetation measures to be taken.

24. Road construction for surface management activities will generally be limited to the summer and fall months. Road clearing limits, road widths, and road densities will be minimized as needed to meet the visual quality objective. Special mitigating measures, including shrub and tree seeding and planting, fertilizer applications, mulching, and endhauling may be required. Mitigating measures will be included in work plans associated with road development for locatable minerals, timber sales, and other management activities.

Visual Quality Practices:

25. The area will be managed to meet the visual quality objective of Partial Retention from the viewpoints specifically recognized as sensitive. Maps of these viewpoints are on file in the Supervisor's Office and on the Ranger Districts and will be consulted to visually assess the impacts of management activities. Temporary departures from this visual quality objective may be acceptable under the following conditions: a) long-term visual values require such an action; or b) essential road access into other management areas is impossible without this temporary depature.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special Standards will also apply.

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special use permits may be permitted; however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on grade, slope steepness and soil condition.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project work related use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big-game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eleminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: 1) snowmelt period - early April to late June; and 2) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Noxious Weed Control	Acres	45	241
Soil Inventory	M Acres	2.58	0
Land Exchange	Acres	461	6
Minerals Management	Cases	4	4
Total Timber Volume Offered*	MMBF	1.0	0
Clearcut	Acres	0	0
Shelterwood	Acres	201	0
Selection	Acres	0	0
Commercial Thin	Acres	0	0

Silvicultural Exams	M Acres	0.6	0
Reforestation (Appropriated Funds)	Acres	42.4	0
Reforestation (K-V)	Acres	63.6	0
Tbr. Std. Imp. (Appropriated Funds)	Acres	0	0
Tbr. Std. Imp. (K-V)	Acres	0	0
Landline Location	Miles	0.5	0
Fuels Management (BD)	Acres	211	0
Fuels Management (FFP)	Acres	214	214
Road Construction/Reconstruction			
Arterial	Miles	0	0
Collector	Miles	1.80	1.38
Local	Miles	1.4	0
Trail Construction/Reconstruction	Miles	0.4	0.4

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* Acres by harvest system are estimates, final determination is made by a certified silviculturist using site specific information. Refer to Appendix C-3, Vegetation Management Practices, for a further discussion.

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-2, 1-6, 3-1 thru 3-10, 3-12 thru 3-15,
4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 24

52,303 Acres

A. Description

Management Area 24 consists of lands with high visual sensitivity and which are available for varying degrees of timber management. These lands have a range of physical environments as determined by soil, slope, aspect, elevation, physiographic site, and climatic factors. Habitat Groups 1 through 5 with sensitive to nonsensitive soils are represented in these lands which are visible from or adjacent to major roads, trails, communities, and other high use areas.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

Portions of the Cascade Falls (No. 242) and Morrell Falls (No. 30) Trails and a portion of the Lewis and Clark National Historic Trail are located within this Management Area on the Plains, Seeley Lake, and Missoula Ranger Districts. Refer to the proposed Forest Plan map for locations.

An extensive road system will be developed in this Management Area but the location and density will be restricted to meet Visual Quality Objectives. Roads will be either open or closed to public use as determined by the Forest Travel Plan.

B. Goals

1. Achieve the visual quality objective of Retention.
2. Provide for healthy stands of timber and optimize timber growing potential within the constraints imposed by Goal 1, while providing for dispersed recreation use opportunities, wildlife habitat, and livestock use.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.
2. The Management Area is classified as suitable for timber production.
3. Yarding methods will be used that minimize or eliminate soil disturbance in the riparian zone.
4. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

5. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

6. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the management area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

7. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

8. Insect and disease detection surveys and evaluations must be conducted annually. Using integrated pest management techniques, efforts aimed at preventing or controlling losses from outbreak populations will be necessary at times. These efforts may include removal of highly susceptible, heavily infected, or infested individual trees.

9. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs dictate the necessity for roads.

10. Construction equipment service areas will not be located in riparian zones within this Management Area.

11. Roads will be designed to provide low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before removal.

12. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

13. Project plans will incorporate consideration for elk summer habitat and deer and elk winter range management where these values are present.

Recreation Practices:

14. The Forest's recreation specialist will be consulted about mitigation measures to protect the values associated with the National Historic and Recreation Trails (identified in the Management Area description) as part of the environmental analysis process for projects within the foreground viewing area from these trails.

15. Harvest methods range from 70 percent selection/30 percent shelterwood to 20 percent clearcut/80 percent shelterwood depending on habitat group, physical site condition, visual quality objectives, and silvicultural objectives.

16. Only minor amounts of timber will be harvested the first decade.

17. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species.

18. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

Minerals Practices:

19. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 3, 3c, 3g, 3h, 3i, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

20. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

21. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

22. Roads will be constructed as needed to meet the management objectives of the area. Estimated average road densities are: 0 to 40 percent slope = 4.6 miles/square mile; 40 to 60 percent slope = 4.8 miles/square mile; 60 percent plus = 2.8 miles/square mile. Actual project-level road densities will vary depending upon the following factors: a) habitat type and associated screening and revegetative recover time; b) staging of road construction; c) silvicultural systems employed, together with amount of screening removed each entry; d) logging systems used; and e) amount and type of revegetation measures to be taken.

Visual Quality Practices:

23. Management practices for all resources will follow guidelines for the Retention visual quality objective from the viewpoints identified as visually sensitive. Maps of these viewpoints are on file in the Supervisor's Office and on the Ranger Districts and will be consulted to visually assess the impacts of management activities. Temporary

departures from this visual quality objective may be acceptable under the following conditions: a) long-term visual values require such an action; or b) essential road access into other management areas is impossible without this temporary departure.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special Standards will also apply.

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special-use permits may be permitted, however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on grade, slope steepness and soil condition.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project work related use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big-game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eleminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: 1) snowmelt period - early April to late June; and 2) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	2.43	0
Noxious Weed Control	Acres	40	644
Land Exchange	Acres	168	2
Minerals Management	Cases	4	4
Total Timber Volume Offered*	MMBF	2.4	2.0
Clearcut	Acres	0	0
Shelterwood	Acres	0	0
Selection	Acres	1114	1114
Commercial Thin	Acres	0	0
Silvicultural Exams	M Acres	1.0	0
Reforestation (Appropriated Funds)	Acres	41.8	0
Reforestation (K-V)	Acres	167	0
Tbr. Std. Imp. (Appropriated Funds)	Acres	0	0
Tbr. Std. Imp. (K-V)	Acres	0	0
Landline Location	Miles	2.0	0
Fuels Management (BD)	Acres	52	0
Fuels Management (FFP)	Acres	202	202

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Road Construction/Reconstruction			
Arterial	Miles	0	0
Collector	Miles	5.2	4.0
Local	Miles	3.0	0
Trail Construction/Reconstruction	Miles	0.9	0.9

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* Acres by harvest system are estimates, final determination is made by a certified silviculturist using site specific information. Refer to Appendix C-3, Vegetation Management Practices, for a further discussion.

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-2, 3-1 thru 3-10, 3-12 thru 3-15,
4-1, 4-3, 4-6, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 25

116,420 Acres

A. Description

Management Area 25 consists of lands with a medium degree of visual sensitivity and which are available for varying degrees of timber management. These lands have a range of physical environments as determined by soil, slope, aspect, elevation, physiographic site, and climatic factors. Habitat Groups 1 through 5 with sensitive to nonsensitive soils are represented in these lands which are located along major roads, trails, communities, other high use areas, and a small number of less sensitive viewpoints.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

Portions of the Skookum Butte Trail (No. 304) and Lewis and Clark National Historic Trail are located within this Management Area on the Missoula Ranger District. Refer to the proposed Forest Plan map for locations.

An extensive road system will be developed in this Management Area but the location and density will be restricted to meet visual quality objectives. Roads will be either open or closed to public use as determined by the Forest Travel Plan.

B. Goals

1. Achieve the visual quality objective of Partial Retention.
2. Provide for healthy stands of timber and optimize timber growing potential within the constraints imposed by Goal 1, while providing for dispersed recreation opportunities, wildlife habitat, and livestock use.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.
2. The Management Area is classified as suitable for timber production.
3. Yarding methods will be used that minimize or eliminate soil disturbance in the riparian zone.
4. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

5. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

6. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

7. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

8. Insect and disease detection surveys and evaluations must be conducted annually. Using integrated pest management techniques, efforts aimed at preventing or controlling losses from outbreak populations will be necessary at times. These efforts may include removal of highly susceptible, heavily infected, or infested individual trees.

9. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs dictate the necessity for roads.

10. Construction equipment service areas will not be located in the riparian zone within this Management Area.

11. Roads will be designed to provide a low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before removal.

12. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

13. Project plans will incorporate considerations for elk summer habitat and deer and elk winter range management where those values are present.

Recreation Practices

14. The Forest's recreation specialist will be consulted about mitigation measures to protect the values associated with the National Historic and

Recreation Trails (identified in the Management Area description) as part of the environmental analysis process for projects within the foreground viewing area from these trails.

Timber Practices:

15. Harvest methods range from 20 percent clearcut/80 percent shelterwood to 30 percent clearcut/70 percent shelterwood depending on habitat group, physical site condition, visual quality objective, and silvicultural objectives.

16. The following will be emphasized in the first decade:

    a. Regeneration harvest will emphasize clearcutting.

    b. Precommercial thinning may be used on seedling/sapling stands (average age 20 years) to achieve rapid growth to meet visual goals.

17. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species.

18. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws, undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

Minerals Practices:

19. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 2b, 3, 3c, 3g, 3h, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

20. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

21. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

22. Roads will be constructed as needed to meet the management objectives of the area. Estimated average road densities are: 0 to 40 percent slope = 5.6 miles/square mile; 40 to 60 percent slope = 5.9 miles/square mile; 60 percent plus = 4.2 miles/square mile. Actual project-level road

densities will vary depending upon the following factors: a) habitat type and associated screening and revegetative recovery time; b) staging of road construction; c) silvicultural systems employed, together with amount of screening removed each entry; d) logging systems used; and e) amount and type of revegetation measures to be taken.

Visual Quality Practices:

23. Management practices for all resources will follow guidelines for the Partial Retention visual quality objective from the viewpoints identified visually sensitive. Maps of these viewpoints are on file in the Supervisor's Office and on the Ranger Districts and will be consulted to visually assess the impacts of management activities. Temporary departures from this visual quality objective may be acceptable under the following conditions: a) long term visual values require such an action; or b) essential road access into other management areas is impossible without this temporary depature.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special Standards will also apply.

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special-use permits may be permitted, however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on grade, slope steepness and soil condition.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project work related use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big-game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eleminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: a) snowmelt period - early April to late June; and b) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	5.42	0
Noxious Weed Control	Acres	111	661
Land Exchange	Acres	461	6
Minerals Management	Cases	9	8
Total Timber Volume Offered*	MMBF	29.6	9.3
Clearcut	Acres	953	0
Shelterwood	Acres	2544	2222
Selection	Acres	0	0
Commercial Thin	Acres	0	0
Silvicultural Exams	M Acres	7.7	4.5
Reforestation (Appropriated Funds)	Acres	942	280
Reforestation (K-V)	Acres	1413	1122
Tbr. Std. Imp. (Appropriated Funds)	Acres	0	0
Tbr. Std. Imp. (K-V)	Acres	0	0
Landline Location	Miles	13.3	3.9
Fuels Management (BD)	Acres	1663	607
Fuels Management (FFP)	Acres	450	450
Road Construction/Reconstruction			
Arterial	Miles	0	0
Collector	Miles	5.3	4.0
Local	Miles	24.8	10.2
Trail Construction/Reconstruction	Miles	2.4	2.4

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* Acres by harvest system are estimates, final determination is made by a certified silviculturist using site specific information. Refer to Appendix C-3, Vegetation Management Practices, for a further discussion.

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-1, 1-2, 1-6, 3-1 thru 3-10, 3-12 thru 3-15,
4-1, 4-2, 4-3, 5-1, 7-2, 7-3, 8-1, 10-1

MANAGEMENT AREA 26

19,722 Acres

A. Description

This Management Area includes the mappable portions of the Forest's critical elk summer habitat lying outside of wilderness and roadless areas. It includes lands containing concentrations of special habitat features such as wallows, mineral licks, seeps and trampled areas, and important forage units in close proximity, that tend to concentrate animals in relatively small areas. In addition to the mapped area described, this Management Area also provides direction to those unmapped portions that are represented as inclusions in other management area allocations.

Portions of the Ashley Creek Municipal Watershed (Thompson Falls) lie within this Management Area.

Generally, these features are located on the gentle topography found at mid to upper slopes and in the heads of drainages and cirque basins. Cool and moist habitat types, moist to wet meadows, riparian habitats, and other mesic areas, in association with dense cover and forested slopes, typify the vegetation of the area. The Habitat Groups generally represented include 0, 3, 4, 5, and 6.

B. Goals

1. Manage these areas to maintain or improve elk habitat through specifically prescribed vegetation manipulation.

2. Provide for other resource objectives if they are appropriate with elk management in the area.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing will be regulated so as to not conflict with critical elk summer range values.

2. Dispersed recreation activities are permitted that do not impact elk summer range values. Developed campgrounds and similar facilities will not be constructed.

3. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition ans structure of plant communities, or for hazard reduction purposes.

4. Areas will be evaluated periodically for significant insect and disease problems. Buildups of minor insect and disease agents that do not pose threats to adjacent lands will be accepted as naturally occurring phenomena.

5. Road construction will be permitted to meet wildlife habitat objectives and to provide access to adjacent management areas. Roads will be closed to the public during periods of high anticipated big-game use (usually August 1 through September 30). Local roads rather than collector roads will be preferred for accessing these sensitive areas.

6. Construction equipment service areas will not be located in this Management Area.

7. Roads will be designed to provide low risk of drainage failure and mass failure. The runoff event for which a roadway is designed will vary depending on the length of time the road and its drainage structures and fill embankments at natural drainageways are to be in place before removal.

8. Road drainage features will be inspected and maintained in the fall to insure that they will be able to handle spring snowmelt.

9. Mineral material permits will not be issued unless the environmental analysis determines that development will not conflict with critical elk summer range values.

   Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Timber Practices:

10. Timber harvest will be employed to improve or maintain critical summer habitat; timber harvest prescriptions as identified in Management Area 16 will be applicable to those portions of this Management Area that are not included in the feature's influence area as defined in Forest Standard No. 21. Special prescriptions for these areas will be developed by interdisciplinary teams that include a wildlife biologist. Harvest methods will vary from 100 percent selection to 90 percent selection/10 percent clearcut. The Management Area is classified as suitable for timber production.

Minerals Practices:

11. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 2b, 3, 3j, 5, 6, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road and Trail Practices:

12. New trail construction or relocation of existing trails will avoid this Management Area when practical.

13. Roads will be located to cross rather than to parallel streams in riparian areas. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

14. When flow in a stream course is temporarily diverted to accommodate construction or other activities, flow will be restored to the natural course as soon as practical prior to a major runoff season.

15. Management practices will follow the guidelines for the Modification visual quality objective except where visible from viewpoints specifically recognized as sensitive. Maps of these viewpoints and involved distance zones are on file and must be consulted to determine the visual quality objective. If the visual quality objective is Modification, it will be met from the nearest viewpoints contained in Sensitivity Level maps on file.

D. Municipal Watershed Standards

Where portions of this Management Area are within the Ashley Creek Municipal Watershed, the following special standards will also apply.

1. General

a. Signs will be posted on the trail indicating that Ashley Creek is a Municipal Supply Watershed where precautions in respect to sanitation, refuse, etc., are necessary to protect water quality.

b. Livestock grazing permits will not be issued. Should livestock drift into the watershed from adjacent private lands, the owners will be required to remove them immediately. They will be encouraged to fence the boundary to better control livestock drift.

c. Land occupancies requiring special-use permits may be permitted; however, proposals will be evaluated as to their effect on water quality and esthetic values. Proposals having adverse impact potential will not be approved unless adequate mitigation measures are available.

d. Immediate suppression action will be taken on wildfires in a manner that minimizes the impact of equipment use on water quality. Heavy equipment, such as bulldozers, may be used, but only where irreparable impacts will not occur, as determined through initial resource impact evaluation. Such an evaluation will include watershed rehabilitation needs which will become an integral part of the complete suppression action.

e. Chemical herbicides and pesticides will not be used within the Ashley Creek Watershed.

f. A hydrologist and soil scientist will always be members of interdisciplinary teams that develop specific project plans and/or activities within the Ashley Creek watershed.

2. Road Development

a. Road densities will be minimized using maximum spacing whenever possible. Roads will be designed to have minimum impact on sediment yield in the watershed. Drainage structure spacing must follow Forest standards based on grade, slope steepness, and soil condition.

b. All system roads within 200 feet of a stream course will be surfaced, if needed to minimize or eliminate sediment delivery to the stream, in accordance with established engineering and water quality standards and guidelines. Roads that meet this criteria will also be constructed with a slash filter windrow, or some comparable method, on the fill side to control sediment flow into the stream.

c. Road crossings of Ashley Creek will generally be avoided, but if necessary, as determined through detailed transportation planning, will be constructed in a manner that minimizes sediment delivery to Ashley Creek, both during and after construction.

d. Where roads must be constructed on slopes in excess of 60 percent, excavation materials will be endhauled to reduce sediment production.

e. Use of the existing low standard road near the water intake facility will be discontinued and its wheel tracks rehabilitated to eliminate the channeling of runoff water.

f. Roads that would be difficult to screen from distant view on some steep, rocky slopes will generally be avoided unless determined to be necessary for access to important adjacent areas through detailed transportation planning.

g. Roads on steep, textural landscapes will be developed initially from the top of the face, rather than mid-slope, to avoid straight edged or unnatural openings. If this is not possible, helicopter logging or other aerial logging systems will be considered for this portion of the drainage.

h. Permanent roads will not be constructed within recognized key grizzly habitat components.

i. All roads within the Ashley Creek Watershed will be closed yearlong for public use. During periods of management activity, only project work related use will be permitted.

3. Timber

a. Timber harvest activities, including cutting unit size, shape, and position on the slope, will be designed to maintain or enhance water quantity but only within water quality objectives.

b. Slash accumulations along stream channels will be hand piled to avoid machinery activity there to minimize potential for sediment delivery to Ashley Creek.

c. Timber harvest activities on the bench terrace area (soil unit 16Ua) in the lower portion of the drainage will be done in a manner and at a time of year that will minimize soil surface disturbance and its related sediment production potential.

d. Insect and disease epidemics will be evaluated in relation to the effect on water quality. Appropriate control measures will be initiated if an epidemic threatens watershed objectives.

4. Wildlife

Prescribed fire may be used for big-game or grizzly bear habitat maintenance or improvement where appropriate, but only in a manner that avoids situations where increased water flows contribute ash or other sediments to Ashley Creek.

5. Sanitation

a. Portable toilet facilities (self storing) will be required for project crews operating within the Ashley Creek watershed.

b. Equipment maintenance, including recurrent servicing, will be done only at sites selected by watershed specialists and in a manner that eleminates disposal of petroleum products onto or into the ground. Such waste materials shall be removed from the Ashley Creek drainage for disposal, including accidental fuel oil spills. Storage of petroleum products within the drainage will not be permitted.

c. Project crews will be required to police work areas daily for waste and garbage which is to be removed from the Ashley Creek drainage for disposal.

6. Water Monitoring

Water shall be collected from the water intake facility and analyzed for chemical and physical quality on a regular basis depending on project activity within the watershed as follows:

a. During periods when there are no active projects, sampling frequency will be twice annually: 1) snowmelt period - early April to late June; and 2) low flow period - late August.

b. During periods of active projects, sampling frequency will be every week during snowmelt period, April to June, then once every month through September. This schedule will continue for 2 years after project activity ends.

The analysis will include the following parameter measurements:

a. Discharge
b. Temperature
c. Specific Conductivity
d. Turbidity
e. Suspended Sediment

7. Landownership Adjustment

All opportunities will be explored to acquire non-Federal lands within the Ashley Creek watershed, located above the Thompson Falls water intake facility, through exchange for Federal lands outside the drainage. Prior to possible land exchanges, efforts will be made to encourage cooperation of other landowners to conduct management activities within the goals and objectives of this plan.

E. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Soil Inventory	M Acres	0.92	0
Noxious Weed Control	Acres	0	184
Land Exchange	Acres	0	0
Minerals Management	Cases	1	1
Total Timber Volume Offered*	MMBF	1.1	1.1
Clearcut	Acres	0	0
Shelterwood	Acres	0	0
Selection	Acres	0	0
Commercial Thin	Acres	0	0

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* Estimate of unregulated volume; refer to Timber Appendices.

F. Monitoring and Evaluation Requirements

The following items that are to be monitored and evluated in this Management Area are described in Table 5.1.

1-1, 1-3, 1-4, 5-1, 7-2, 7-3

MANAGEMENT AREA 27

83,460 Acres

A. Description

Management Area 27 consists of scattered parcels of commercial forest land in Habitat Groups 2, 3, 4, and 5, and are generally steep and rocky. Timber management is not economically or environmentally feasible at this time due to the physical features of the parcels. Other resource values such as old-growth habitat exist but are not needed to meet resource production goals.

Roads may pass through this Management Area for development of mineral resources or to access other areas. Roads will be either open or closed to public use as determined by the Forest Travel Plan.

B. Goals

Provide basic resource protection including soil and water values until management practices are developed which permit timber management activities or economic conditions change which would make these areas economically feasible to manage for timber.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Livestock grazing may occur, but it will be incidental.

2. A variety of dispersed recreation activities are permitted and can be supported by trails passing through the unit. Developed campgrounds or similar facilities will not be constructed.

3. Tree removal will be limited to that required to eliminate safety hazards or to permit road or trail construction and firewood removal adjacent to roads. The Management Area is classified as unsuitable for timber production.

4. No special management activities will be undertaken to increase wildlife use.

5. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Plan, described in Appendix X.

   To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition ans structure of plant communities, or for hazard reduction purposes.

6. Slash created by any management practice will be disposed of in a manner consistent with the visual quality objective.

7. Management practices affecting the visual resource will follow the guidelines provided by maps of viewpoints and distance zones on file and these must be consulted to determine the visual quality objective.

8. Mineral material sources may be established and permits issued in those locations where such developments will not conflict with the goals of the Management Area. Exploration and development of locatable minerals will be in accordance with approved plans which include provisions to mitigate impacts on and/or protect other resources.

Timber Practices:

9. No scheduled timber harvest will occur. Timber salvage and firewood removal may occur where access exists.

10. Salvage of dead, dying, or high hazard trees is permitted to prevent disease and insect population buildup. Stand manipulation to prevent losses will not be practiced.

Mineral Practices:

11. The following oil and gas lease prescriptions are applicable to this Management Area: 1, 1a, 2b, 3, 3c, 3f, 3i, 5, 6, 9, 10, and 11. These prescriptions are identified in Appendix F and will be recommended for inclusion as oil and gas lease stipulations when applicable.

Road Practices:

12. Roads will not be constructed for surface management objectives within this Management Area. Roads may be constructed through segments of this Management Area to provide access to other management areas. Roads will be permitted for mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and it is the next logical step in the development of the mineral resource.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Noxious Weed Control	Acres	0	57
Soil Inventory	M Acres	3.88	0
Land Exchange	Acres	126	2
Minerals Management	Cases	7	6
Trail Construction/Reconstruction	Miles	.1	.1

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this Management Area are described in Table 5.1.

1-4, 4-3, 5-1, 7-1, 7-2, 8-1, 10-1

MANAGEMENT AREA 28

25,010 Acres

A. Description

This management area consists of the nonwilderness portion of the Rattlesnake National Recreation Area and Wilderness (RNRAW) which was established by PL 96-476 on October 19, 1980. The area includes the land extending from the city limits of Missoula, north of Stuart Peak and Mineral Peak and includes a travel corridor extending up Rattlesnake Creek to the vicinity of the mouth of Wrangle Creek.

The area is important for its value as a portion of Missoula's municipal watershed, a dispersed recreation area, an environmental education area, and habitat for a wide variety of wildlife. A potential botanical area, Shoofly Meadow, is within this area. This meadow contains Sphagnum riparian, the only place in Montana where this species has been found. Shoofly Meadow is assigned to Management Area 6.

Management prescriptions for the wilderness portion of the Rattlesnake National Recreation Area and Wilderness is contained under Management Area 12 and in Appendix O-4.

B. Goals

1. Provide for a wide variety of dispersed recreation opportunities in a forest setting available to a wide segment of society (i.e., hiking, camping, backpacking, hunting, fishing, horseback riding, and bicycling).

2. Provide for acceptable levels of water quality in the municipal watershed.

3. Provide opportunities for environmental education and interpretation.

4. Provide for management of wildlife habitat, historical, scientific, ecological, and other values in a manner consistent with the recreational objectives.

C. Standards

The Forest-wide management direction included in Chapter II of this plan applies to this Management Area.

1. Supplemental feed will be required for all stock due to limited availability of natural forage.

2. Trails may be improved to enhance accessibility, disperse concentrated recreation use, and protect other resource values. The existing trail system will be maintained for the types of use depicted in the management plan and Decision Notice published May 14, 1984. Trails will be evaluated for nomination as part of the National Recreation Trail System.

3. Tree removal will be limited to that required to eliminate safety hazards or permit construction or expansion of facilities. The Management Area is classified as unsuitable for timber production.

4. All management activities, especially those that involve earth moving, will be designed to minimize impacts on water quality and other riparian values.

5. Wildlife and fish habitat improvement projects are compatible. Such projects will strive to increase opportunities to view wildlife and, where permitted, to hunt and fish.

6. Private lands within the NRA will be acquired by gift, purchase, or exchange.

7. Management of the area will be coordinated with other Federal, State, and local agencies and private groups to provide for the overall needs of the public.

8. The Shoofly Meadow area (76 acres in section 8, T. 14 N., R. 17 W.) contains a collection of the species Spagnum riparium. This site is the only known location for this species in Montana and only the second location in the contiguous western United States. The site is designated a Botanical Area within Management Area 6.

9. Streamside vegetation will be managed for shade and filtering of overland flows.

10. Oil and gas evaluations for the land in this Management Area will be done by means of the National Environmental Policy Act environmental analysis process and documented with an environmental analysis report or an environmental impact statement as appropriate.

11. Mineral materials permits will not be issued in this area. Consideration will be given to withdrawing individual parcels in Management Area 28 from mineral entry using the criteria in Appendix H.

12. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each management unit in the Fire Management Plan, described in Appendix X. To achieve management goals and objectives, prescribed burning may be planned and executed to maintain or restore the composition and structure of plant communities, or for hazard reduction purposes.

13. Areas will be evaluated periodically for significant insect and disease problems such as mountain pine beetle. Buildups of minor insects and most disease agents do not normally pose threats to adjacent lands and effects of these will be accepted as naturally occurring phenomena.

14. Road access may be provided to meet administrative, recreation and education objectives. Private vehicles may be permitted on the Rattlesnake Road to facilitate the participation of the elderly and handicapped for educational/interpretation outings. The Mineral Peak road will be open to all motorized vehicles.

Timber Practices:

15. Timber removal will be limited to that needed to maintain or improve recreation values.

Fire Practices:

16. Prescribed burning may be used to improve big-game forage and reduce hazards. Suppression activities will generally utilize hand tools rather than heavy equipment.

Water Quality:

17. The Sawmill Gulch Road, including the existing parking site, will be treated to reduce the siltation in Rattlesnake Creek.

18. Hard surfacing will be utilized on the Rattlesnake parking area and access road to reduce dust and road surface run-off to Rattlesnake Creek.

19. Overnight camping will not be permitted within 3 miles of the Rattlesnake Trail Head due to the additional sanitation needs required and associated risk of contamination of the watershed.

20. Vault toilets will be provided at heavy day use sites to minimize the risk of human waste contaminating Rattlesnake Creek.

Wildlife:

21. Grizzly bear use and habitat conditions will be monitored. Restrictions on recreation users are not anticipated.

22. Key winter range areas in Sawmill Gulch, Woods Gulch, and Strawberry Ridge will be managed to enhance wildlife with recreation use discouraged through signing during the critical months of December through May. Dogs will be excluded from the RNRAW (except Woods Gulch and Sawmill Gulch, June 15 to December 1) to avoid disturbance and stress on wildlife.

23. Mountain goats reintroduced to the cliffs above Franklin Bridge will be monitored until well established.

Environmental Education:

24. The Forest Service will participate in a community committee including, but not limited to, representatives from the Missoula School District, University of Montana, and local teachers. The Forest Service will be

available to assist in: a) developing curriculum materials for different grade levels; b) identifying specific areas in the RNRAW where curriculum materials can best be used; c) conducting environmental education credit workshops for local teachers--coordinated with the University of Montana, to include sections on environmental awareness and the urban/forest interface; d) developing RNRAW background materials for use by local school districts; and e) scheduling use patterns.

25. A cooperative program will be established with the University of Montana and the Intermountain Forest and Range Experiment Station to oversee professional research projects and the training of wilderness management specialists.

26. Items of historical interest will be retained as historic reminders and allowed to age naturally. Historical and/or cultural sites will be evaluated for significance and considered for inclusion on the National Register of Historic Places. Mineral Peak lookout will be removed for public safety when it is no longer required for fire detection.

27. Programs will not entail site modification or the construction of facilities that would violate the natural appearance of the area.

Recreation Opportunity:

28. Outfitter and guide services will be permitted for both day and overnight use to provide for summer and fall fishing and sightseeing. Air transport services and services related to hunting will not be permitted.

29. Campsites will be provided, when needed, for outfitters and other horse users at Elk Meadows; and to hikers at the junction of Wrangle Creek and Rattlesnake Creek. Facilities will be limited to fire rings, hitch rails, corrals, and toilets.

30. Stream fishing in the Rattlesnake will be permitted above Beeskove Creek to provide additional nonwilderness recreation opportunities. Regulations and limits are established by the Montana Department of Fish, Wildlife, and Parks.

31. Sawmill Gulch will be made available, by permit, for organized trail rides, environmental education groups, and in situations where that area can be used to alleviate congestion at the main trail head. Graveled surfacing, parking for 10 vehicles and horse trailers or buses, hitch rails, and toilets will be provided. Use will not be permitted when occupied by wildlife during critical periods.

32. The discharge of firearms will not be permitted within 3 miles of the Rattlesnake Trail Head year around as a safety measure in a zone with high occupancy.

33. Snowmobiles will be permitted to operate in the Mineral Peak, Shoofly Meadow, and Twin Creeks areas which provide adequate snow depths with no

adverse affects on wildlife. Except on the Mineral Peak road, no other motorised use will be permitted.

34. The visual quality objective will be Retention, with some possible short term falldowns associated with prescribed burning. The trail heads will meet partial Retention.

Facilities:

35. The main Rattlesnake Trail Head will be moved north, between the Sawmill Gulch Road and Rother Road junction. The parking area and access road will be hard surfaced to avoid dust problems and accommodate snow plowing. Design standards will include parking spaces for horse trailers and/or school buses with a combined capacity of 35 vehicles. An unloading ramp for horses, hitch rails, information signing, bicycle racks, and vault toilets will be provided.

36. The existing roads will be maintained to their present standards with maintenance emphasis on reducing mud holes and improving drainage.

37. Trail head facilities at the West Fork Gold Creek and main Gold Creek sites will consist of parking for 5 vehicles, hitch rails, and directional signing. This location is approximate with the actual location dependent on the land adjustment program with Plum Creek Timber Company (Burlington Northern, Inc.).

38. A trail head will be constructed at Grant Creek if a right-of-way can be obtained. An alternate site on the Snow Bowl Road will be considered.

Vegetative Treatment:

39. The Homestead Meadows will be treated by burning, handpiling, and/or cutting to remove invading trees and noxious weeds to retain the typical cleared homestead appearance.

40. The ponderosa pine flat between Spring Creek and Poe Meadow bordered by Strawberry Ridge and Rattlesnake Creek will be treated by cutting and/or prescribed fire to encourage a mosaic of old-growth pine with interspersed openings and thickets.

D. Schedule of Management Practices

Management Practices	Units (Average Annual)	Planned (Decade 1)	Projected (Decade 2)
Land Exchange	Acres	1440	0
Noxious Weed Control*	Acres	20	149
Trail Construction/Reconstruction	Miles	0.3	0.3

---

* In this Management Area, biological and mechanical methods are the only acceptable means of weed control.

E. Monitoring and Evaluation Requirements

The following items that are to be monitored and evaluated in this management area are described in Table 5.1.

5-1, 7-2, 8-1, 10-1

IV. Rock Creek

A. Introduction

Rock Creek is an outstanding fishery that has national recognition for fishing quality and fish production. The Montana Department of Fish, Wildlife and Parks has classified Rock Creek as a Blue Ribbon Trout Stream. Rock Creek is the only Blue Ribbon Trout Stream where National Forest System land comprises the majority of the watershed and streambanks. This National Forest System land comprises 80 percent of the Rock Creek drainage and is administered by the Deerlodge and Lolo National Forests.

An issue specific to Rock Creek was identified by both Forests, to be addressed in their Forest Plans. The issue is: "How Can the Forests Continue to Protect the Fishery, Wildlife, and Recreational Values in the Rock Creek Blue Ribbon Trout Stream?" This chapter contains the management direction specific to the Rock Creek drainage that has been developed in response to this issue. It is included in both the Deerlodge and Lolo Forest Plans to ensure management consistency throughout the drainage, while recognizing and providing for the ecosystem differences within the drainage. This chapter also includes a list of activities scheduled within the drainage during the first decade of implementation of the two Forest Plans.

The following policy guides the management of the National Forest System lands in the Rock Creek drainage:

The Rock Creek drainage is an outstanding fishery and recreation resource, and these values will be maintained. The existing character of the drainage as well as the variety of recreation opportunities will be maintained. Forest Service management will be responsive to the following criteria. These criteria, which are similar to those used by the State of Montana to designate Rock Creek as a Blue Ribbon Trout Stream, are:

1. Fisheries Production - Management activities and authorized uses will be designed to protect the biological and physical fisheries habitat. The Forest intends to manage the headlands to provide the quantity and quality of water necessary to maintain the total Rock Creek aquatic ecosystem.
2. Availability - The Forest service will continue to provide public access via the Rock Creek road and specific access to the stream in areas where the Forest provides the access. Portions of the Rock Creek road are under the jurisdiction of Granite and Missoula Counties.
3. Esthetics - Management activities and authorized uses will be designed to maintain the beauty of the landscape and the stream.
4. Use - The Forest service will continue to provide public facilities in concert with the private sector and commensurate with the values and use of the Blue Ribbon Trout Stream.

Because the Rock Creek drainage lies within the boundaries of two National Forests, Lolo and Deerlodge, the management standards from both

Forests have been combined into this chapter. The management direction in this chapter is specifically for the Rock Creek drainage.

The Forest policies and management direction apply to all management areas, and monitoring and evaluation requirements applicable to each are listed in the management area direction chapter of each Forest Plan.

A number of oil and gas leases have been issued in the drainage. Before any development activities are allowed to take place, another environmental assessment will be made to determine the final terms of a permit.

B. Description

The Rock Creek drainage lies in the central portion of the Northern Rocky Mountains and drains into the Clark Fork of the Columbia River approximately 20 miles southeast of Missoula, Montana. The drainage basin runs generally south to north. It is approximately 54 miles long and averages about 18 miles in width. The upper (south) half abuts the Continental Divide and is bowl shaped. The lower (north) half is an incised trough. Elevations vary from 10,456 feet at Warren Peak on the Continental Divide to roughly 3,540 feet where Rock Creek enters the Clark Fork. The climate varies from semi-arid steppe with 18 inches of annual precipitation to an alpine-like setting with 50 inches of precipitation per year.

The soils formed from the Belt Series of the drainage are quite stable with low erosion and low mass failure hazards. Soils forming on the granitics in the upper reaches of the drainage have a moderate-to-high erosion hazard.

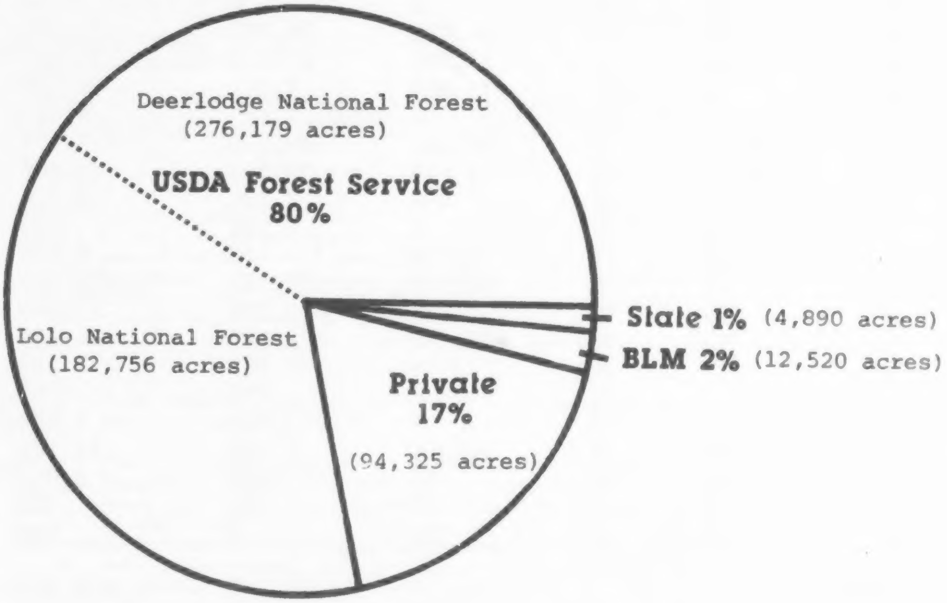
There are 63,388 acres of big-game winter range identified within the drainage. In addition, a number of sensitive summer range areas, including wet meadows, high elevation basins, and dense stands of security cover, have been identified. In total, the area supports large populations of big-game animals including elk, mule deer, whitetailed deer, bighorn sheep, and moose. Other wildlife species of special public interest inhabiting the area include golden eagles, mountain goats, lions, and a large variety of songbirds.

Two Federally listed endangered species occur in the area. During mild winters, bald eagles migrate through the lower portion of the drainage. They generally frequent only the major flood plain portions of the drainage. Peregrine falcons were sighted in lower Rock Creek drainage in 1984. Suitable nest habitat exists in the area, although there has been no known nesting activity.

The lower 51.3 1/ miles of Rock Creek are classified as a Blue Ribbon Trout Stream by the State of Montana Department of Fish, Wildlife and Parks. This classification is based primarily upon Rock Creek's productivity for fishing. Other considerations are the stream's availability, aesthetics, and use.

Approximately 280 miles of fishable streams exist within the drainage. Other values and use in the area include wilderness, recreation, timber harvest, livestock grazing, big-game winter range, and oil and gas leasing. Of the 570,670 acres within the Rock Creek watershed, 458,935 are National Forest, 12,520 are Bureau of Land Management, 4,890 are State of Montana, with 94,325 acres in private ownership.

Ownership



1/ River Mile Index
Columbia River Basin
Montana Department of Natural Resources, July 1984

The following shows the acres by management areas within the Rock Creek drainage:

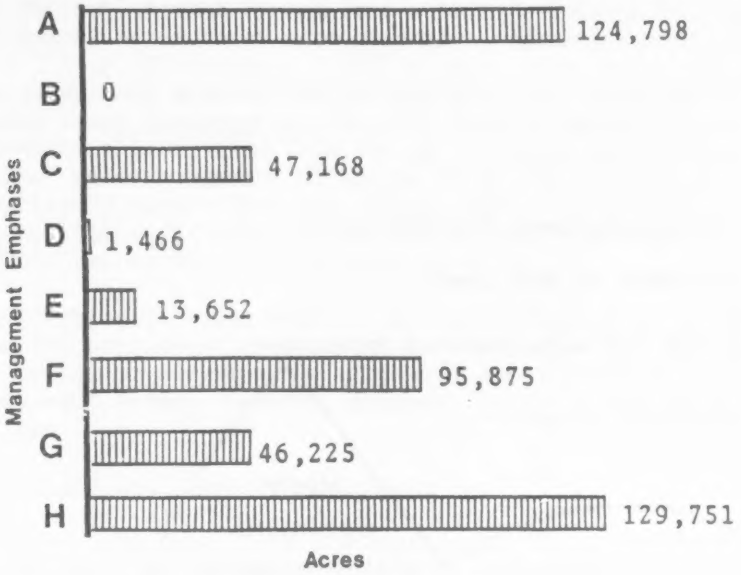
Figure IV-1. Rock Creek Management Areas*

MANAGEMENT AREAS*			ACRES		
Map Symbol	Deerlodge	Lolo	Deerlodge	Lolo	Total
a	A1	7	92	18	110
b	A2	3 1/	0	0	0
c	A4	11	64,830	30,655	95,485
d	A5	-	17,819	0	17,819
e	A6	1,10	11,469	3,281	14,750
f	-	27	0	4,635	4,635
h	B1,B2	12	40,531	89,220	129,751
i	C1,C2	19	12,540	10,848	23,388
j	C3	26	7,494	1,706	9,200
k	-	21	0	315	315
l	D2	15	6,713	12	6,725
m	E1	16	72,947	30,182	103,129
n	E2	17	18,453	3,216	21,669
o	E3	18	12,140	2,125	14,265
p	-	24	0	688	688
q	-	25	0	778	778
r	-	13	0	1,863	1,863
s	F1	14	10,726	1,063	11,789
g	F3	9	35	1,966	2,001
---	J2	5	0	185	185
t	J3	6	390	0	390
TOTAL			276,179	182,756	458,935

1/ None identified in Rock Creek at the present time.

*NOTE: Map of Rock Creek with management area allocation follows text.

Management Emphases

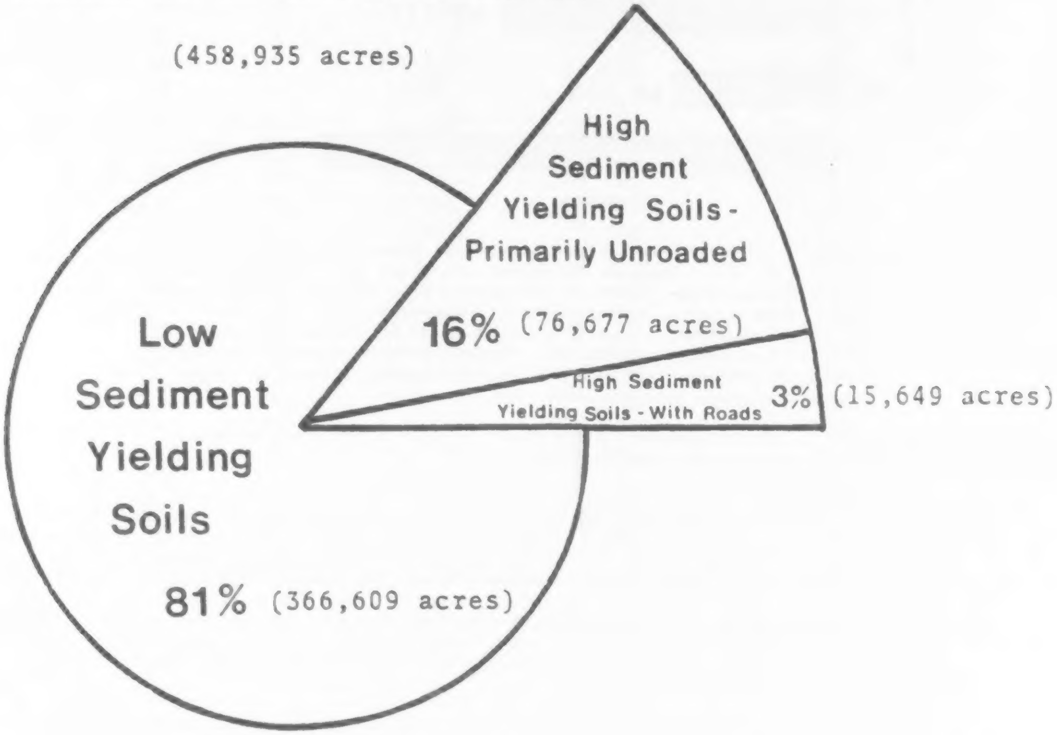


A	Timber/Range	(Lolo Management Areas 16, 17; Deer Lodge Management Areas E1, E2) - Includes management activities where roads and timber removal are scheduled; Management prescriptions include timber management, timber/wildlife management, riparian timber management, mule deer and elk habitat management, and whitetail deer habitat management. Includes management activities where investments are made for range management, such as prescribed burning, watering tanks, and fencing are.
B	Wildlife/ Grizzly	(Lolo Management Areas 20, 20a); There are no acres in this Management Emphasis in Rock Creek.
C	Wildlife/ Other	(Lolo Management Areas 18, 19, 21, 22, 23, and 26; Deer Lodge Management Areas C1, C2, C3, E3) - Includes management activities where investments are made for wildlife, such as prescribed burning. Lands include winter range for deer, elk, and bighorn sheep; lands evenly distributed across the Forest in all site conditions to provide old age stands of timber for old-growth dependent wildlife species with timber harvest, and critical elk summer habitat including features such as wallows, mineral licks, seeps and trampled areas in close proximity to important forage units.
D	Visual	(Lolo Management Areas 24 and 25) - Includes management activities where roads and timber removal are scheduled. Investments are made to maintain the visual quality objectives identified for the area.
E	Riparian	(Lolo Management Areas 13 and 14; Deer Lodge Management Area F1) - Includes management activities where the intent is to preserve the riparian areas according to policy and guidelines. Management prescriptions include riparian area management.
F	Roadless	(Lolo Management Areas 6, 11, and 28; Deer Lodge Management Areas A4, J3) - Includes management activities where the intent is to preserve the roadless resource. Some roading may occur due to development of mineral resources such as oil and gas. Management prescriptions include dispersed recreation management.
G	Miscellaneous	(Lolo Management Areas 1 through 5, 7 through 10, 15 and 27; Deer Lodge Management Areas A1, A2, A5, A6, D2, F3, J2) - Includes management of administrative sites, recreation sites, and so forth, according to Forest guidelines and policies.
H	Wilderness	(Lolo Management Area 12; Deer Lodge Management Areas B1, B2;) - Includes wilderness management.

Percentage of High Sediment Yielding Soils
to be Developed in Rock Creek

(Combined Lolo and Deerlodge National Forests)

(458,935 acres)



C. Management Area Direction

The National Forest System land within Rock Creek has been divided into 21 management areas, each with different resource potential and limitations.

The management area boundaries are not firm lines and do not always follow easily found topographic features, such as major ridges. The boundaries represent a transition from one set of opportunities and constraints to another with management direction established for each. The boundaries are flexible to assure that the values identified are protected and to incorporate additional information gained from further on-the-ground reconnaissance and project level planning.

The Forest-wide management direction in Chapter II of this plan, the specific management area direction in Chapter III and the monitoring and evaluation requirements in Chapter V apply equally to the Rock Creek Management Areas. Several standards apply to the whole of Rock Creek; these follow:

1. Oil and Gas Lease Prescriptions

Within the Rock Creek Drainage Basin, there are lands with differing ownership and management status. As a result, the options for leasing them for possible oil and gas exploration and development are not the same.

Wilderness areas were withdrawn from mineral leasing on January 1, 1984, as required by Section 4(d)(3) of the Wilderness Act of 1964 (PL 88-577). No oil and gas leases have been nor can be issued on such lands. These areas are the Welcome Creek Wilderness on the Lolo National Forest and the Anaconda-Pintler Wilderness on the Deerlodge National Forest.

Roadless areas recommended for wilderness by the Forest Service have not been leased. Oil and gas lease applications received for them have not been processed pending final Congressional action on these areas. As a result of the Montana Wilderness Study Act of 1978 (PL 95-150), the Sapphire Wilderness Study Area is also being considered for potential wilderness designation. Any oil and gas lease applications received for this area will be similarly deferred until Congress makes final disposition of its status. These lands fall in the same management categories as the wilderness areas.

The lands purchased by the Forest Service lying within the Rock Creek valley will be available for lease but with a "no surface occupancy" stipulation.

All other lands in the Rock Creek drainage basin will be available for leasing. All oil and gas leases will be issued with stipulation to mitigate possible adverse impacts to soils, water quality, wildlife, cultural resources, and visual esthetics.

2. Timber Suitability

The following table displays suitability by management area:

Map Symbol	MANAGEMENT AREAS Deerlodge	MANAGEMENT AREAS Lolo	SUITABILITY Deerlodge	SUITABILITY Lolo
a	A1	7	unsuitable	unsuitable
b	A2	3 1/	unsuitable	unsuitable
c	A4	11	unsuitable	unsuitable
d	A5	-	unsuitable	-
e	A6	1,10	unsuitable	unsuitable
f	-	27	-	unsuitable
g	F3	9	unsuitable	unsuitable
h	B1,B2	12	unsuitable	unsuitable
i	C1,C2	19	unsuitable	unsuitable
j	C3	26	unsuitable	suitable 2/
k	-	21	-	suitable
l	D2	15	unsuitable	unsuitable
m	E1	16	suitable	suitable
n	E2	17	suitable	suitable
o	E3	18	suitable	suitable
p	-	24	-	suitable
q	-	25	-	suitable
r	-	13	-	unsuitable
s	F1	14	unsuitable	unsuitable
-	J2	5	unsuitable	unsuitable
t	J3	6	unsuitable	unsuitable

1/ None identified in Rock Creek at the present time.

2/ MA 26 and MA 21 contain suitable lands with yields reduced for wildlife habitat.

3. Mitigation Measures

The Region One/Region Four Sediment Model will be utilized to predict sediment increase for all project activities. The results of that model will be used to design each project so that the cumulative affects of all projects remain below the threshold values for negative impacts to fish populations in all subdrainages.

Mitigation Measures	Percent Effectiveness in Sediment Reduction
Vegetative Measures (Cumulative)	
Seed and fertilizer application	25
Plant ponderose pine, seed, and fertilize	28
Wood chip mulch, seed, and fertilize	37
Straw mulch, seed, and fertilize	43
Netting in aspen blanket, seed, and fertilize	56
Asphalt and mulch	57
Mulch and net, seed, and fertilize	58
Sod	60
Physical Measures (Individual)	
Road tread surfaced	20-25
Road grade 5% or less	2
Rip-rap fill	50
Road partially closed (no maintenance)	75
Road permanently closed (obliterated)	95
Buffer strips along water course 1/	10-15
Filter windrows (slash or baled straw) at bottom of fill slope	35-40

1/ As specified in Packer, P. E. and G. F. Christensen (1964).

DEERLODGE MA A1 / LOLO MA 7

(Map Symbol: a)

These Management Areas include Forest Service developed campgrounds, picnic areas, boat ramps and other developed recreation sites. Development ranges from an essentially natural environment with minimal facilities to site modification with convenience facilities.

GOALS

To maintain the present variety and quality of developed recreation sites in order to contribute to the public safety and enjoyment of the National Forest.

To manage recreation residences and other recreation special uses for safety, harmony with the environment, and to fill a public need.

MANAGEMENT STANDARDS

1. Forest Service sites will be constructed, reconstructed, and/or maintained in accordance with established Recreation Opportunity Spectrum (ROS) Classification for the area and its associated development scale.
2. Sites not efficient to maintain or not offering good recreation opportunities will be consolidated or phased out. New sites will be established if needed.
3. Pathways, picnic and camp units, and toilets will be constructed or modified to accommodate handicapped people when practicable.
4. Livestock and recreational stock will be excluded from grazing on developed sites during season of recreational use.
5. Tree removal will be that required to eliminate safety hazards or permit construction or expansion of facilities and provide for vegetative management.
6. Existing mineral withdrawals will be maintained and future withdrawals will be established on sites with significant capital investments.
7. Common variety mineral permits will not be issued.
8. Fire suppression actions will be undertaken to safeguard life and property.
9. Management practices will follow guidelines for the Partial Retention visual quality objectives, except clearing will be permitted to accommodate needed structures and facilities.

DEERLODGE MA A2 / LOLO MA 3
(Map Symbol: b)

This Management Area includes significant historical, archaeological, and/or paleontological sites. Examples of significant sites are homesteads, historic mining structures, and Native American occupation sites. The location of these sites is on file in the Supervisors' Offices.

GOALS

To protect and preserve those sites determined to be significant as well as those not yet evaluated for significance in accordance with the Antiquities Act of 1906, the Archeological Resources Protection Act (1979), the National Historic Preservation Act (1966), and Executive Order 11593 (1973).

To fulfill obligation of consultation with Native American religious leaders stated in the American Indian Religious Freedom Act. To interpret for public use only those sites for which adequate protection against vandalism can be assured.

MANAGEMENT STANDARDS

1. Cultural resource management plans will be prepared for all areas classified as significant. Developments necessary to implement interpretation plans will be allowed. Management will be for Retention or Preservation visual quality objectives.

2. Sites will be protected from livestock damage.

3. Timber removal will be limited to that necessary to enhance and retain physical and aesthetic quality and provide for public safety.

4. Sites will be protected from impact by mining operations or, if unavoidable, proper mitigation procedures will be followed.

5. Road and trail construction will be allowed as identified in the specific cultural management plan for the area.

6. Fire suppression actions will be undertaken to safeguard property.

7. Sites will be protected through public education, if necessary, survelliance and access restrictions.

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DEERLODGE MA A4 / LOLO MA 11
(Map Symbol: c)

This Management Area consists of large roadless blocks of land distinguished by their natural character. These areas are located on a variety of terrain and vegetative habitat types. The Management Area contains trails. Generally there is no livestock grazing. Some spring, summer, and fall elk preference areas exist. Evidence of past mining, such as exploratory holes and caved-in cabins, is scattered over the area.

GOALS

To maintain these areas in a natural condition.

To protect basic soil and water resources.

To provide for a wide variety of dispersed recreation activities.

MANAGEMENT STANDARDS

1. Dispersed recreation acitivities will be supported by construction of facilities such as trails, trail head developments, etc. Campgrounds and similar facilities will not be constructed.

2. Prescribed burning will be conducted for wildlife and other resource management purposes, subject to restrictions imposed by adjacent areas.

3. Tree cutting is limited to that required to eliminate safety hazards or permit approved facility construction.

4. Where necessary, grazing systems, schedules, practices, and developments will be modified to insure compatibility with recreation goals. New allotments, except for recreation horse allotments, will not be established.

5. All mineral access requests will be analyzed to determine the full effects of the proposal on the management goal. Approved roads may be used until project completion, at which time they will be closed and restored to a near-natural condition. Geochemical and geophysical prospecting is encouraged, rather than surface disturbance methods.

6. Utility corridors are not allowed.

7. New roads will not be constructed for surface management objectives. Natural setting and a perception of remoteness will be maintained.

8. Wildfire will be confined, contained, or controlled according to criteria and guidelines for each fire management unit in the Fire Management Action Plan. (See Appendix X.)

9. Management practices will follow guidelines for the Retention visual quality objective.

DEERLODGE MA A5
(Map Symbol: d)

This Management Area consists of large blocks of undeveloped land with some low standard four-wheel drive roads and assorted trails. Livestock graze many of the mountain meadows and grassland. The area contains spring, summer, and fall elk preference areas. Evidence of past mining and timber harvest for mining is scattered over the area.

GOALS

To manage in a near natural condition for dispersed recreation. To allow for motorized vehicle use such as trail bikes, four-wheel drives, and snowmobiles.

To manage elk habitat at the current levels, continue livestock grazing, make timber products such as fuelwood and post and poles available, and allow mineral access.

MANAGEMENT STANDARDS

1. Motorized vehicle use will be controlled. Different recreation uses like hiking, four-wheel driving, trail biking, horse traveling, snowmobiling, and skiing will be separated and restricted. Restrictions or closures will be established through the Forest Travel Plan.

2. Trail and end-of-road facilities will be allowed to provide access and to disperse use throughout area.

3. Habitat improvements including prescribed burning will be allowed.

4. Livestock grazing will be allowed. Adequate forage for summering wildlife will be provided.

5. Firewood, post and poles, and other products may be harvested when compatible with the recreational intent of the area.

6. Trail access will be encouraged. New roads will be allowed on a case-by-case basis. When any mining project is completed, roads will be closed and restored to a near-natural condition unless determined to be compatible with recreation use.

7. Surface occupancy for oil and gas leases will be permitted.

8. Utility corridors within the context of the Management Area goals will be permitted.

9. Trails will be planned, designed, constructed, reconstructed, and/or relocated to disperse recreation use over the area and to provide a variety of recreation opportunities.

10. Wildfire will be confined, contained, or controlled according to criteria and guidelines for each management area in the Fire Management Action Plan. (See Appendix X.)

11. Prescribed fire will be used to enhance and maintain other resource values.

DEERLODGE MA A6 / LOLO MA 1 AND 10
(Map Symbol: e)

This Management Area consists of small parcels of land scattered throughout the Forest and at all elevations. They are generally unproductive for timber or have severe physical constraints for management. These areas are steep and rocky, contain low resource values, or have poor accessability.

GOAL

Manage these areas essentially in their present condition with minimal investment for resource activities consistent with protection of basic soil, water, and wildlife resources.

MANAGEMENT STANDARDS

1. Dispersed recreation activities will be encouraged. Developed campgrounds will not be constructed.
2. Trail construction will be allowed to access and meet adjacent management area objectives. Trail restrictions will be implemented where necessary to meet objectives of adjacent management areas and/or to prevent resource damage.
3. Management practices, including prescribed burning, will be permitted to maintain or improve wildlife habitat where necessary to meet the objectives of adjacent management areas. Generally, no habitat improvement projects will be carried out.
4. Timber harvest will be limited to salvage and firewood removal where access exists. Slash disposal created by any management practice will be disposed of in a manner consistent with the management area goals.
5. Livestock grazing will be allowed in this management area where it currently exists as part of an allotment management plan.
6. Roads will not be constructed for surface management objectives within this management area. Roads may be constructed through segments of this management area to provide access to other management areas.
7. Roads may be allowed for locatable mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and it is the next logical step in the development of the mineral resource.
8. Restore roads to a near natural condition when any mining project is completed.
9. Road closures will be determined by the Forest Travel Plan.

10. Wildfires will be confined, contained or controlled as provided for by criteria and guidelines for this fire management unit in the Fire Management Plan. (See Appendix X.)

11. Management practices will generally retain the natural appearance of the current landscape.

LOLO MA 27
(Map Symbol: f)

Management Area 27 consists of scattered parcels of commercial forest land in Habitat Groups 2, 3, 4, and 5, which are generally steep and rocky. Timber management is not economically or environmentally feasible at this time due to the physical features of the parcels. Other resource values such as old-growth habitat exist.

GOAL

To provide basic resource protection until economic conditions change or management practices are developed which would make these areas economically feasible to manage for timber.

MANAGEMENT STANDARDS

1. A variety of dispersed recreation activities are permitted and may be supported by trails. Developed campgrounds or similar facilities will not be constructed.

2. Management practices affecting the visual resource will follow the guidelines provided by maps and documents zones on file, and these must be consulted to determine the visual quality objective.

3. No scheduled timber harvest will occur. Timber salvage of dead, dying, or high risk trees and firewood removal may occur where access exists. Stand manipulation through timber harvest to prevent losses will not be practiced.

4. Slash created by any management practice will be disposed of in a manner consistent with the visual quality objective.

5. Livestock grazing may occur, but it will be incidental.

6. Mineral material permits will be issued where environmental analysis determines suitability, capability, and need. Existing or planned road system will be utilized for exploration and development.

7. Roads will not be constructed for surface management objectives within this management area. Some roads may be constructed to provide access to other management areas. Roads will be permitted for mineral activities provided that the necessity for building the road is justified on the basis of mineral showings or data and is the next logical step in the development of the resource.

8. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for this fire management unit in the Fire Management Plan.

DEERLODGE MA B1 AND B2 / LOLO MA 12
(Map Symbol: h)

This Management Area includes existing wilderness areas (Anaconda Pintler and Welcome Creek) and a portion of the Lolo Forest proposal for wilderness classification (Sliderock).

GOALS

To manage the existing wilderness in accordance with the Wilderness Act of 1964.

To maintain the wilderness character and potential for inclusion in the National Wilderness Preservation System administration endorsed wilderness proposals until Congress makes a decision on classification.

MANAGEMENT STANDARDS

1. Visitor use will be managed according to the Wilderness Act of 1964 to prevent loss of solitude or unacceptable depreciation of the wilderness qualities. Specific management direction for limiting and distributing use, the extent to which wildfire, insect and disease control measures may be desirable are found in the specific wilderness plan. These plans are in compliance with the management prescriptions in this section.

2. Trail relocation and construction will be permitted, with minimal disturbance of the natural environment.

3. Wildlife habitat will be maintained in an essentially natural condition.

4. Livestock grazing will continue where established prior to the classification date of the Wilderness area, provided that natural vegetative composition is maintained. Sustained livestock grazing may be reduced if it damages the wilderness resource.

5. Existing livestock management improvements will be maintained. Structural range improvements will be constructed only when necessary to protect the wilderness resource.

6. Timber harvest will not be permitted.

7. All mining activities must comply with reasonable conditions for the protection of National Forest resources in accordance with the general purposes of maintaining the wilderness unimpaired for future use and enjoyment of its wilderness character.

8. Facilities and structures necessary to insure the protection of the wilderness resource will be constructed. However, facilities may not be constructed to provide convenience to recreationists.

9. No roads will be constructed.

10. Wildfire will be confined, contained or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Action Plan. (See Appendix X.)

11. Management practices will follow the guidelines for the preservation of visual quality objective, except for modifications that may be permitted by fire.

DEERLODGE MA C1 AND C2 / LOLO MA 19

(Map Symbol: i)

This Management Area consists of shrub and grasslands on south aspects at lower elevations. It includes winter range for deer, elk, moose, and mountain sheep. Historically, wildfire has played a major role in providing for the needs of big game in areas represented in this Management Area.

GOALS

To maintain as winter range emphasizing big-game forage and thermal cover requirements.

To provide opportunities for dispersed recreation.

MANAGEMENT STANDARDS

1. Developed recreation facilities will not be constructed; however, dispersed trail-oriented, nonmotorized recreation is encouraged. Dispersed recreation facilities such as trails and trail heads may be constructed as needed. Motorized access will be restricted during big-game wintering periods December 1 to May 15.

2. Wildlife habitat improvement practices including road management, prescribed fire, and other techniques will be used to maintain and/or enhance the big-game winter range useability.

3. Big-game forage needs will be given priority when the area is grazed by livestock. Big-game needs will be based on average annual use by wintering animals, consistent with anticipated populations.

4. Timber harvesting will be a management tool to maintain or enhance winter range. Firewood gathering will be allowed from open roads. Tree removal is limited to that required to eliminate safety hazards, permit road or trail construction, or meet other management objectives.

5. Mineral material permits will be considered on a case-by-case basis. Permits will be issued if they do not conflict with the management goals of the area.

6. Road construction will be allowed through segments of this Management Area to provide access to other management areas. Roads will be permitted for special land uses or for mineral activities.

7. Roadside vegetation will be maintained where possible, especially at established game crossings.

8. Wildfires will be confined, contained, or controlled as provided for by criteria and guidelines for each fire management unit in the Fire Management Action Plan. (See Appendix X.)

9. Management practices will follow the guidelines for the Modification visual quality objective except where visible from viewpoints specifically recognized as sensitive. Maps of these viewpoints and involved distance zones are on file and must be consulted to determine the visual quality objective.

DEERLODGE MA C3 / LOLO MA 26
(Map Symbol: j)

This Management Area includes mostly tree-covered areas with scattered wet meadows and grassland parks. It contains the spring, summer and fall big game preference areas. Domestic livestock graze this area.

GOALS

To manage for big-game spring, summer, and fall habitat, emphasizing both forage and cover requirements.

To harvest wood products to improve the diversity of habitat.

MANAGEMENT STANDARDS

1. Roads will generally be closed except where needed to access other management areas. Motorized access will be controlled as shown in the Forest Travel Plan.
2. Wildlife habitat improvement practices will be used including road management, prescribed fire, and other techniques to maintain and/or enhance the quality of spring, summer, and fall range.
3. Grazing systems, schedules, practices, and developments will be modified to insure compatibility with spring, summer, and fall big-game needs.
4. Timber harvest will be used as a management tool to maintain or enhance big-game spring, summer, and fall habitat.
5. Harvesting of other forest products, such as Christmas trees and post and poles, must be compatible with elk calving and summer range management goals. Firewood gathering from open roads is allowed.
6. Wildfires will be confined, contained, or controlled as provided for by criteria for each fire management unit in the Fire Management Plan. (See Appendix X.)
7. Management practices will follow the guidelines for the Modification visual quality objective except where visible from viewpoints specifically recognized as sensitive. Maps of these viewpoints and involved distance zones are on file and must be consulted to determine the visual quality objective.

LOLO MA 21
(Map Symbol: k)

This Management Area consists of a variety of forested lands representing all elevations, aspects, habitat groups, and growing site conditions. They are located in such a way as to evenly distribute old age timber stands for wildlife dependent on old growth. Wildlife is represented by species such as the pileated woodpecker, pine marten, hermit thrush, and goshawk.

GOALS

To provide for old-growth succession in timber stands with optimum habitat components to maintain viable populations of old-growth dependent wildlife.

To provide opportunities for nonmotorized dispersed recreation.

MANAGEMENT STANDARDS AND GUIDELINES

1. A variety of dispersed recreation activities is permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.

2. Management practices will follow guidelines for the Modification visual quality objective except where visible from viewpoints specifically recognized as sensitive. Maps of these viewpoints and involved distance zones are on file and must be consulted to determine the visual quality objective.

3. Timber harvest will be employed to improve or maintain old-growth habitat.

4. Stands should be provided which are at least 30 to 40 acres in size and are decadent, multistoried, fully stocked, contain snags with dead and down material greater than 15 tons per acre, and contain 15 trees per acre greater than 20 inches d.b.h. These stands should be well distributed.

5. Livestock grazing may be permitted where compatible with old-growth management.

6. Road construction will not be permitted between March 15 and July 15.

7. Mitigating measures will be included in work plans for mineral-related road development.

8. Prescribed burning will be permitted for slash disposal and site preparation. Wildfires will be confined, contained, or controlled following criteria and guidelines in the Fire Management Plan. (See Appendix X).

DEERLODGE MA D2 / LOLO MA 15
(Map Symbol: 1)

These areas consist of grasslands, meadows, open timber stands, and other forage-producing areas on slopes generally less than 40 percent.

GOALS

To manage these areas primarily for livestock while maintaining big-game habitat.

To increase forage production from range investments designated for livestock and coordinate with other resources.

MANAGEMENT STANDARDS

1. Control motorized vehicle use through the Forest Travel Plan.
2. Restrict snowmobiles on big-game winter ranges to roads where they will not conflict with big-game use.
3. Wildlife habitat improvement projects will be utilized to maintain big-game habitat.
4. Implement range management systems to develop the range resource to sustain or improve forage production.
6. Implement forage improvement projects such as prescribed burning for sagebrush and tree encroachment control on a scheduled basis. The schedule will be developed as part of the allotment management plan.
7. Use prescribed fire with planned and unplanned ignitions for the enhancement and maintenance of range habitat types.
8. Maintain or reconstruct existing range improvements and construct new improvements as identified in approved allotment management plans.
9. Harvest firewood, posts and poles, and other products where compatible with the management intent of the area. Harvest operations should avoid disturbance of important forage areas such as grasslands.
10. Allow road access for mineral activities. Approved access should minimize effects on forage producing areas.
11. Permit road construction for surface management objectives.
12. Wildfires will be confined, contained, or controlled following criteria and guidelines for each fire management unit in the Fire Management Plan. (See Appendix X.)
13. Management practices will follow guidelines for the Modification visual quality objective.

DEERLODGE MA E1 / LOLO MA 16
(Map Symbol: m)

These Management Areas consist of lands which are suitable for timber management as determined by soil, slope, aspect, elevation, physiographic site, and climatic factors. Within this area are the channels, banks, and lands immediately adjacent to first and second-order streams. While they provide limited, if any, fish habitat, they are the headwater streams where high quality water first surfaces.

GOALS

To provide for healthy stands of timber and optimize timber growing potential.

To provide dispersed recreation opportunities, wildlife habitat and livestock use.

To provide for maintenance of soil productivity, water quality and stream stability.

MANAGEMENT STANDARDS

1. Ground vegetation and soil will be left undisturbed adjacent to all streams and draws except where roads cross. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was. Timber management systems shall not create runoff increases likely to result in channel degradation.

2. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels for trout habitat, maintain channel stability, promote filtering sediment from overland flows, and to maintain suitable cover and temperatures.

3. Where needed, fish passage will be provided for by maintaining natural flow velocities and channel gradients.

4. A variety of dispersed recreation activities will take place. Trails and trail head facilities will be constructed where necessary to meet recreation demands.

5. Management practices may visually dominate or modify the landscape.

6. Project plans will incorporate considerations for elk summer habitat. Cover will be maintained as specified within the Hunting Recreation Objectives.

7. Yarding methods will be used that minimize soil disturbance in the riparian zone. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

8. Construction equipment service areas will not be located in riparian zones.

9. Prescribed burning will be used to accomplish slash disposal, site preparation, silvicultural, wildlife, and livestock objectives. Where fire is not used, lopping/scattering, trampling, fuelbreak construction, and fuelwood yarding will be used to reduce fuel accumulations and prepare sites for regeneration. Slash disposal will be complete enough to provide for free movement of deer and elk through the area and prepare sites for natural regeneration.

10. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species and channel needs.

11. Transitory forage will be utilized by livestock where livestock are now permitted. Livestock will be relocated when transitory forage shifts or declines.

12. Mineral material permits will be issued where environmental analysis determines suitability, capability, and need.

13. Roads will be constructed as needed to meet the management objectives of the area.

14. Roads will be designed to provide low risk of drainage failure and mass failure.

15. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

16. New roads in riparian zones will be minimized. Roads will be located to cross rather than to parallel streams in this area. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas.

17. Generally local roads will be closed.

18. Wildfires will be confined, contained, or controlled following criteria and guidelines for each fire management unit in the Fire Management Plan. (See Appendix X.)

DEERLODGE MA E2 / LOLO MA 17
(Map Symbol: n)

These Management Areas consist of lands which are suitable for timber management. The area has a variety of slopes, aspects, elevations, physiographic sites, and climatic factors. Within this area are the channels, banks, and lands immediately adjacent to first- and some second-order streams. While they provide limited, if any, fish habitat, they are the headwater streams where high quality water first surfaces. These lands contain granitic soils or are generally steeper than 60 percent. Mitigation measures are required on areas of disturbance to prevent impact on fish populations due to sedimentation.

GOALS

To provide for maintenance of soil productivity, water quality, stream stability, and downstream fishery habitat.

To provide dispersed recreation opportunities, wildlife habitat, and livestock use.

To provide for healthy stands of timber and an appropriate level of timber harvest consistent with the fishery values of the Rock Creek drainage.

MANAGEMENT STANDARDS

1. Riparian vegetation, including overstory tree cover, will be managed, along all perennial and intermittent streams with defined channels to maintain channel stability, to promote filtering of overland flows, and to maintain suitable cover and temperatures for trout habitat.

2. Provisions will be made for fish passage at in stream crossings by maintaining natural flow velocities and channel gradients at the crossing site.

3. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

4. Trails and trail head facilities will be constructed where necessary.

5. Management practices may visually dominate or modify the landscape.

6. Considerations for elk summer habitat will be incorporated into project plans. Cover will be maintained as specified within the Hunting Recreation Objectives.

7. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species.

8. Yarding methods will be used which minimize or eliminate soil disturbance in the riparian zone. Logging and/or construction operations will be

conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

9. Construction equipment service areas will not be located in riparian zones in these Management Areas.

10. Prescribed burning will be used to accomplish slash disposal, site preparation, silvicultural, wildlife, and livestock objectives. Where fire is not used, lopping/scattering, trampling, fuelbreak construction, and fuelwood yarding will be utilized to reduce fuel accumulations and prepare sites for regeneration. Complete slash disposal enough to provide for free movement of deer and elk through the area and prepare sites for natural regeneration.

11. Transitory forage will be utilized by livestock where livestock are now permitted. Livestock will be relocated when the amount of transitory forage declines.

12. Mineral material permits will be issued where suitable.

13. Roads will be constructed as needed to meet the management objectives of the area.

14. Roads will be designed to provide low risk of drainage failure and mass failure.

15. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

16. Generally local roads will be closed.

17. Special measures, such as seeding and fertilizing, mulching of cut and fill slopes, filter windrows, rip-rap, etc., will be applied to new roads to the extent necessary to reduce sedimentation to an amount below the threshold level of fish population impacts.

18. Road densities on steep slopes will be less than 3 miles per square mile.

19. New roads in riparian zones will be minimized. Roads will be located to cross rather than to parallel streams in this area. Stream buffer strips and erosion control methods will be used to minimize sediment.

20. Wildfires will be confined, contained, or controlled following criteria and guidelines in the Fire Management Plan. (See Appendix X.)

DEERLODGE MA E3 / LOLO MA 18
(Map Symbol: o)

This Management Area has a high value for big-game habitat. It includes winter range for deer, elk, moose, and mountain sheep. Areas are tree covered, containing stands of Douglas-fir, lodgepole pine, subalpine fir, ponderosa pine, and spruce. Grasslands, parks, and meadows are included which provide important big-game needs.

GOALS

To optimize forage production and cover for deer, elk, and bighorn sheep on winter range.

To provide for big-game cover, on both summer and winter range, maintain healthy stands of timber, and optimize timber growing potential.

To provide dispersed recreation opportunities and livestock use.

MANAGEMENT STANDARDS

1. Ground vegetation and soil will be left undisturbed adjacent to all streams and draws except where roads cross. Undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created. Timber management systems shall not create runoff increases likely to result in channel degradation.

2. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to promote filtering of overland flows, to maintain cover and temperatures for trout habitat, and maintain streambank stability.

3. Provisions will be made for fish passage at in stream crossings by maintaining natural flow velocities and channel gradients.

4. A variety of dispersed recreation activities will take place. Trails and trail head facilities will be constructed where necessary. Developed campgrounds and similar facilities will not be constructed.

5. Management practices seen from visually sensitive viewpoints will result in landscapes that are natural or predominantly natural appearing. Practices seen from less sensitive viewpoints may result in landscapes that are modified or dominated by the activity.

6. Project plans will incorporate considerations for deer/elk winter range management. The appropriate cover:forage ratio will be retained. The majority of cover should be thermal cover.

7. Practices such as road management, prescribed fire, and timber harvest will be used to maintain and/or enhance the quality of big-game habitat.

8. Dead and down trees may be salvaged as constrained by habitat needs of cavity nesting wildlife.

9. Livestock grazing will be allowed after all big-game needs have been met. Big-game needs will be based on a determination of average annual use by wintering animals and anticipated populations.

10. Existing or planned road systems, in conjunction with timber management, will be used for mineral exploration and development.

11. Roads will be constructed and managed consistent with big-game management.

12. Generally, new roads in riparian zones will be minimized.

13. Construction equipment service areas will not be located in riparian zones in this Management Area.

14. On winter range, all logging and road building for normal management activities will generally be restricted to the summer and fall months.

15. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

16. Yarding methods will be used that minimize or eliminate soil disturbance in the riparian zone.

17. Road construction techniques that provide low sedimentation will be used.

18. Roads will be located to cross rather than to parallel streams in this area. Stream buffer strips will be used as a means of minimizing sediment.

LOLO MA 24
(Map Symbol: p)

Management Area 24 consists of lands with high visual sensitivity and which are available for varying degrees of timber management. These lands have a range of physical environments as determined by soil, slope, aspect, elevation, physiographic site, and climatic factors. Habitat Groups 1 through 5 with sensitive to nonsensitive soils are represented in these lands which are visible from or adjacent to major roads, trails, communities, and other high use areas.

GOALS

To achieve the visual quality objective of Retention.

To provide for healthy stands of timber and optimize timber growing potential within the constraints imposed by Goal 1, while providing for dispersed recreation use opportunities, wildlife habitat, and livestock use.

MANAGEMENT STANDARDS

1. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

2. Where needed at in stream crossings, fish passage will be provided by maintaining natural flow velocities and existing channel gradients.

3. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.

4. Management practices for all resources will follow guidelines for the Retention visual quality objective from the viewpoints identified as visually sensitive. Rehabilitation measures will be taken where the visual quality objective is not being met.

5. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

6. Yarding methods will be used that minimize or eliminate soil disturbance in the riparian zone.

7. Construction equipment service areas will not be located in riparian zones within this Management Area.

8. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife.

9. Timber harvest will not create runoff resulting in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws. Undisturbed adjacent land shall be of

sufficient width to minimize erosion. All restoration will be completed during the same construction season in which the disturbance was created.

10. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the Management Area.

11. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where total resource needs dictate the necessity for roads.

12. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation low.

13. Roads will be located to cross rather than to parallel streams in this area. Stream buffer strips and established erosion control methods will be used to minimize sediment.

14. Prescribed burning will be permissible within the constraints to meet the visual quality objective. Wildfires will be suppressed, but the use of heavy equipment is not compatible unless needed to protect resource values.

LOLO MA 25
(Map Symbol: q)

Management Area 25 consists of lands with a medium degree of visual sensitivity and which are available for varying degrees of timber management. These lands have a range of physical environments as determined by soil, slope, aspect, elevation, physiographic site, and climatic factors. Habitat Groups 1 through 5 with sensitive to nonsensitive soils are represented in these lands which are located along major roads, trails, communities, other high-use areas, and a small number of less sensitive viewpoints.

The Forest-wide management direction included in Chapter I of this plan applies to this Management Area.

GOALS

Achieve the visual quality objective of Partial Retention.

Provide for healthy stands of timber and optimize timber growing potential within the constraints imposed by Goal 1, while providing for dispersed recreation opportunities, wildlife habitat, and livestock use.

MANAGEMENT STANDARDS

1. Riparian vegetation, including overstory tree cover, will be managed along all perennial and intermittent streams with defined channels to maintain cover and temperatures for trout habitat, maintain streambank stability, and promote filtering of overland flows.

2. Logging and/or construction operations will be conducted in such a way as to prevent debris from entering stream channels. Logs will not be yarded through streams.

3. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

4. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trail head facilities. Developed campgrounds and similar facilities will not be constructed.

5. Management practices for all resources will follow guidelines for the Partial Retention visual quality objective from the viewpoints identified visually sensitive. Visual quality rehabilitation measures will be taken where the visual quality objective is not being met.

6. Timber harvest will not create runoff increases likely to result in channel degradation. Ground vegetation and soil will be left undisturbed immediately adjacent to all streams and draws, undisturbed adjacent land shall be of sufficient width to minimize erosion products from entering stream courses. All restoration treatment will be completed during the same construction season in which the disturbance was created.

7. Dead or down trees may be salvaged as constrained by habitat needs for cavity nesting wildlife species.

8. Yarding methods will be used that minimize or eliminate soil disturbance in the riparian zone.

9. Mineral materials permits will be considered on a case-by-case basis and may be issued if they do not conflict with the management goals for the Management Area.

10. Generally, new roads in riparian zones will be minimized.

11. Construction equipment service areas will not be located in the riparian zone within this Management Area.

12. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

13. Roads will be located to cross rather than to parallel streams in this area. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

14. Prescribed burning will be permissible within the constraints imposed to meet the visual quality objective.

15. Wildfires will be suppressed, but the use of heavy equipment is not compatible unless needed to protect resource values.

LOLO MA 13
(Map Symbol: r)

This Management Area consists of lakes, lakeside lands, major second-order and larger streams and the adjoining lands that are dominated by riparian vegetation. The width of the components of this Management Area varies and is determined by riparian vegetation and valley bottom width but is a minimum of 100 feet each side of the associated water body. Riparian vegetation is vegetation requiring a high level of soil water. The area is often nearly flat and is subject to varying degrees of flooding.

GOALS

To manage riparian area to maintain and enhance their value for wildlife, recreation, fishery and aquatic habitat, and water quality.

To provide opportunities to improve water quality, minimize erosion, and strengthen or protect streambanks through specifically prescribed vegetation manipulation and/or structural means.

To provide opportunities to improve fisheries and wildlife habitat through specifically prescribed vegetation manipulation and/or structural means.

MANAGEMENT STANDARDS

1. Activities designed to enhance fish and aquatic habitat, wildlife, water quality, or recreation shall be mutually compatible to assure long-term maintenance of these resource values.

2. Where needed, fish passage will be provided for in stream crossings by maintaining natural flow velocities and channel gradients existing at the crossing site.

3. Streams that contain pure westslope cutthroat trout will be managed specifically for that subspecies.

4. Fisheries habitat and watershed improvement projects to rehabilitate impacted areas will have priority over improvement projects that involve manipulation of natural conditions.

5. Riparian vegetation, including overstory tree cover, will be left along water bodies as needed to provide shade, maintain streambank stability, desirable pool quality and quality for aquatic organisms, and promote filtering of overland flows.

6. When flow in a stream course is temporarily diverted to accommodate construction or other activities, flow will be restored to the natural course as soon as practical prior to a major runoff season.

7. Opportunities for dispersed recreation will be encouraged and developed. Trails will be designed for wildlife viewing and interpretation. When possible, facilities will be located out of flood plains. Any new development that must be located in these areas will be designed to be flood proof without stream alteration.

8. Management activities will be designed to meet the inventoried visual quality objective.

9. Provide for all wildlife species' needs at a moderate (60 percent population potential) level. High priority habitat projects will be selected and related to recreation opportunities.

10. Tree removal will be limited to that required to eliminate safety hazards and permit road or trail construction.

11. Timber harvest may be used to moderate changes in streamflow regimen and maintain or improve fish and wildlife habitat values, recreation opportunities, and other riparian conditions.

12. Log landings or decking areas will be permitted in this Management Area only if the need is justified in an environmental assessment.

13. All management activities, especially those that involve earth moving, will be designed to minimize impacts on water quality and other riparian values.

14. Construction equipment service areas will not be located in this Management Area.

15. Livestock grazing will be limited to occasional recreation packstock use.

16. Mineral material permits will be issued where environmental analysis determines suitability, capability and need. Existing or planned road system will be utilized for exploration and development.

17. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where road systems must obviously cross or traverse these zones or where total resource needs dictate the necessity for roads.

18. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation hazard low.

19. Road drainage features will be inspected and maintained in the fall to insure that they will be able to handle spring snowmelt.

20. Roads will be located to cross rather than to parallel streams in this area. Stream buffer strips will be used as a means of minimizing sediment transport from disturbed areas. Established erosion control methods will be used to control transportable sediment.

21. Riprap or other erosion control activities will be planned and coordinated with the Forest hydrologist and fisheries biologist and be accomplished during the low flow season and will consider possible downstream consequences of activity.

22. Prescribed burning may be used for slash disposal and to improve wildlife habitat, including aspen and willow regeneration. Prescribed burning will not be used to dispose of slash within 50 feet of streambanks.

23. Wildfires will be suppressed in a manner that minimizes the impact of equipment and retardant use.

24. Utility corridors will avoid use of riparian areas except at crossings.

DEERLODGE MA F1 / LOLO MA 14
(Map Symbol: s)

These Management Areas consist of lakes, lakeside lands, major second-order and larger streams, and the adjoining lands that are dominated by riparian vegetation (except the main Rock Creek on the Deerlodge which is identified in MA 9). The width of the components of this Management Area varies and is determined by riparian vegetation and valley bottom width but is a minimuim of 100 feet each side of the associated water body. Riparian vegetation is vegetation requiring a high level of soil water. The area is often nearly flat and is subject to varying degrees of flooding.

The natural and beneficial values of riparian areas include ground water recharge, moderation of flood peaks, visual and recreational enjoyment, fish and wildlife habitat, cultural resources, and timber and forage production. Portions of this Management Area are within existing grazing allotments.

GOALS

To maintain and enhance riparian values for wildlife, recreation, fishery and aquatic habitat, and water quality, while maintaining livestock grazing that is compatible with the above resources.

To improve water quality, minimize erosion, and strengthen or protect streambanks through specifically prescribed vegetation manipulation and/or structural means.

To improve fisheries and wildlife habitat through specifically prescribed vegetation manipulation and/or structural means.

MANAGEMENT STANDARDS

1. Riparian vegetation, including overstory tree cover, will be maintained along water bodies as needed to provide shade, preserve streambank stability, desirable pool quality and quality for aquatic organisms, and promote filtering of overland flows.

2. All management activities, especially those that involve earth moving, will be designed to minimize impacts on water quality and other riparian values. Project prescriptions will be developed by an interdisciplinary team.

3. Surface occupancy is generally not acceptable within 100 feet of high water line of any lake, stream, spring, pond, or reservoir.

4. Riprap or other erosion control activities will be planned and coordinated with the Forest hydrologist and fisheries biologist and be accomplished during the low flow season and will consider possible downstream consequences of activity.

5. When flow in a stream course is temporarily diverted to accommodate construction or other activities, flow will be restored to the natural course as soon as practical prior to a major runoff season.

6. Those riparian areas identified as damaged will be rehabilitated.

7. Management practices will follow guidelines in the Visual Management System.

8. Timber harvest will be used to maintain or improve fish and wildlife habitat values, recreation opportunities, and other riparian conditions.

9. Grazing systems must be responsive to the multi-resource value of riparian vegetation.

10. Range analysis must provide a quantitative assessment of all forms of vegetation, including shrubs, that may be influenced by grazing.

11. Prolonged concentration of livestock in riparian areas will be prevented through development of range systems and structural improvements.

12. Any mineral exploration or mining activity, especially those that involve earth moving, will be designed to minimize impacts on water quality and other riparian values.

13. Utility corridors will avoid riparian areas except at crossings.

14. Generally, new roads in riparian zones will be minimized. Exceptions would be areas where no other options exist or where total resource needs dictate the necessity for roads. Roads will be located to cross rather than to parallel streams.

15. Roads will be managed to control use and avoid damage to drainage systems and resource values. Roads will be constructed and managed in a manner to keep sedimentation low.

16. Roads will be designed to provide low risk of drainage failure and mass failure.

17. Stream buffer strips will be used as a means of minimizing sediment from disturbed areas. Established erosion control methods will be used to control sediment. During construction, when needed, provisions for fish passage at existing in stream crossings will be made by maintaining natural flow velocities and channel gradients.

18. Road drainage features will be inspected and maintained in the fall to insure that they will be able to handle spring snowmelt.

19. Construction equipment service areas will not be located in this Management Area.

20. Wildfire will be treated in the same manner as in the surrounding riparian areas, and in a manner that minimizes the impact of equipment and retardant use.

21. The following utilization standards apply to livestock grazing in this management area:

Grazing Utilization for Riparian Vegetation*

	Grazing System		
	Continuous	Deferred	Rest Rotation
1/ Poor or Fair Condition or Units Needing Improvement:			
Shrub Utilization (Grazed Species)	20%	25%	30%
Bluegrass Utilization	15-50% 3" stubble ht	45-55% 2" stubble ht	70% 1" stubble ht
Elk Sedge Utilization	15%	15%	35%
2/ Good or Excellent Condition or Units Needing Maintenance:			
Shrub Utilization	40%	45%	65%
Bluegrass Utilization	50-60% 2" stubble ht	65% 1-1/2" stubble ht	70% 1" stubble ht
Elk Sedge Utilization	35%	35%	35%

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* Developed from Forest Service Handbook 2209.21, R-1 Chapter 600 (5/79) and Malheur National Forest Grazing Utilization Standard and from several Forest Service Range/Wildlife staff officers from Region 6. Forest Service Handbook 2209.21, R-1 Chapter 633 (5/79) will prevail if conflicts arise on utilization standards for grasses.

1/ Poor/Fair Forage Condition or Units Needing Utilization Improvement for Other Resources. Units where less than 60 percent of stream surface is shaded from June to September, less than 80 percent of streambank length is stable or more than 15 percent of stream substrate is covered by inorganic sediment, shrubs have less than good reproduction or vigor, or where shrub form class is hedged or shows form changes due to grazing (e.g., "lollipop" shaped).

2/ Good/Excellent Forage Condition or Units Needing Maintenance for Other Resources. Units where 60 percent or more of the stream surface is shaded from June to September, more than 80 percent of streambank length is stable, less than 15 percent of stream substrate is covered by inorganic sediment, shrubs have good reproduction and vigor, and shrub form class does not indicate hedging or form modification due to grazing.

DEERLODGE MA F3 / LOLO MA 9
(Map Symbol: g)

This Management Area includes the bottom lands immediately adjacent to the main stem of the drainage, which is designated as a "Blue Ribbon Trout Stream." The Management Area provides high quality fishing and dispersed recreation use.

GOALS

To provide for a wide variety of dispersed recreation opportunities in a forest setting available to a broad segment of society.

To provide for management of other resources in a manner consistent with the recreation objectives.

To provide for acceptable levels of water quality and fisheries habitat and improve opportunities for trout fishing and other dispersed recreation.

MANAGEMENT STANDARDS

1. Streamside vegetation will be managed for shade and filtering of overland flows.
2. Recreation area plans will be developed to accommodate dispersed recreation, minimize user conflicts, and provide for public safety and sanitation.
3. Visual quality objectives will generally be to retain the existing character of the landscape; more specific direction will be included in the recreation area plan.
4. Small parcels of land will be acquired or easements obtained for access to recreation opportunities in high use areas.
5. Wildlife and fish habitat improvement projects are compatible. Such projects will strive to increase opportunities to view wildlife and to hunt and fish.
6. Trees may be removed to eliminate safety hazards, permit road or trail construction, and to meet recreation objectives.
7. Livestock grazing may be permitted where it does not conflict with fisheries production or recreation values.
8. Mineral materials permits will not be issued but continuance of existing permits may be allowed if an environmental analysis concludes that management goals will not be impaired.
9. The Rock Creek Road under Forest Service jurisdiction will be maintained at the current standard. Trails may be constructed to provide for recreation activities.

10. Prescribed burning will be conducted for slash disposal, hazard reduction, and habitat modification to meet recreation objectives. Suppression of wildfire will minimize the impact of equipment use. Wildfires will be suppressed.

11. Prescribed burning will not be used to dispose of slash within 50 feet of streambanks.

DEERLODGE MA J2 / LOLO MA 5
(Map Symbol: ---)

These Management Areas consist of potential transportation and utility corridors that may be identified on the Forests. Existing and potential rights-of-way will be evaluated to determine if they are compatible with other facilities or uses. If they are determined to be capable of accommodating more than one facility, they will be designated right-of-way corridors.

The Management Areas will consist of the land directly under and adjacent to the facility such as a pipeline or power line. The Bonneville Power Administration Garrison-Taft double circuit 500 kV transmission line, for example crosses the drainage approximately 5 miles upstream from the mouth. As corridors are identified, the acreages within them will be deleted from the Management Areas they cross.

These Management Areas contain all gas transmission lines greater than 8 inches and electric transmission lines greater than 100 kV that cross the Forests.

GOALS

Provide for these facilities on National Forest System land plus other resource uses on the same land if they do not conflict with the established facilities.

MANAGEMENT STANDARDS

1. Construction practices will minimize disturbance to vegetation within the corridor.
2. Dispersed recreation will be allowed. Recreation developments near the corridor will not be planned.
3. Management practices will follow guidelines for the Modification visual quality objective. Vegetative and topographic screening will be used where possible to minimize visual impacts.
4. Accomplish coordination to avoid adverse effects on raptors and other wildlife.
5. Trees will be removed by mechanical means only to meet requirements for construction and maintenance of the transmission facilities. The Management Area is generally classified as unsuitable for timber production. In some cases, conductors may be high enough to permit uninterrupted timber growth beneath them; in such cases, the land will be managed in accordance with the adjacent management area(s).
6. Livestock grazing will be permitted where there are established allotments and where it is consistent with the management prescription for the adjoining area.

7. Right-of-way access to the corridor will be permitted. Local roads will generally be closed.
8. Fire suppression actions will be undertaken to safeguard life and property.

DEERLODGE MA J3 / LOLO MA 6
(Map Symbol: t)

These Management Areas contain the proposed Research Natural Areas (RNA) identified on the Lolo and Deerlodge National Forests to meet Regional targets for examples of major forest ecosystems in western Montana. Areas will be selected to maintain undisturbed examples of major ecosystems for future observation and study.

The acreage in these Management Areas will increase as areas are identified and approved. There will be a corresponding decrease in the acreage of management areas within which new RNA's are located.

GOALS

Provide areas for nonmanipulative research, observation, and study of undisturbed ecosystems which typify important forest, shrubland, grassland, alpine, aquatic, and geologic types.

MANAGEMENT STANDARDS

1. Management practices will follow guidelines for the Retention visual quality objective.
2. Manage for primitive or semiprimitive and nonmotorized ROS class.
3. Wildlife habitat improvements are not permitted except to meet Research Natural Area objectives.
4. Timber harvest is not permitted. The Management Area is classified as unsuitable for timber production.
5. Livestock grazing will not be permitted unless needed to meet Research Natural Area objectives.
6. Mineral materials permits are not allowed. The components of this Management Area will be evaluated for withdrawal from mineral entry. Stipulate no-surface occupancy for oil and gas leases. Additional stipulations may be applied to protect other resource values.
7. Retain in National Forest ownership. Allow no special-use permits unless the proposed use is clearly compatible with the objectives of the RNA.
8. Road and trail construction is prohibited except as necessary to meet Research Natural Area objectives.
9. Prescribed fire with planned or unplanned ignitions may be used, where feasible, to perpetuate the natural diversity of plant communities and for research purposes when within the preestablished prescribed fire criteria detailed in the Fire Management Action Plan.
10. Periodic evaluation will be made for significant insect and disease problems. Generally, no control measures will be undertaken for insect and disease control.

11. Specific direction for protection and management will be developed for each approved Research Natural Area.

D. Schedule

The following table contains proposed activities scheduled in the Rock Creek drainage:

Figure IV-3. Rock Creek Activity Schedule

Activity	Size	Year	MANAGEMENT AREA	Remarks
Helm Creek Timber Sale	429	1985	E1,E2	3.0 MMBF
Pat Gulch Timber Sale (L)	637	1985	16,26	6.7 MMBF
Kitchen Timber Sale (L)	214	1986	16	2.2 MMBF
Happy Creek Timber Sale	428	1986	E1	3.0 MMBF
Sand Basin Timber Sale	286	1986	E2	2.0 MMBF
Upper Willow Timber Sale	1000	1987	E1	7.0 MMBF
Gilbert Timber Sale (L)	272	1987	16,18,26	5.0 MMBF
Alder Niles Timber Sale	614	1988	E1,E2	4.3 MMBF
Duncie Timber Sale	570	1989	E1	4.0 MMBF
Stoney Timber Sale	457	1990	E1	3.2 MMBF
Dexter Timber Sale	429	1992	E1	3.0 MMBF
E. Green Canyon Timber Sale	280	1992	E1	2.0 MMBF
Zekes Meadow Timber Sale	214	1994	E1	1.5 MMBF
Emerine Gulch Timber Sale	71	1994	E1	.5 MMBF

(L) Lolo Forest Sales; remaining activities occur on the Deerlodge National Forest.

Other activities, such as continued grazing on existing allotments and prescribed burning, will take place annually. Burning to increase forage production and for vegetative management where ecosystem management by fire is indicated will occur on a regular annual schedule. These activities will average approximately 159 acres per year.

Firewood and Christmas tree cutting will occur seasonally in those management areas where these practices are allowed.

Mining activities will occur sporadically.

E. Monitoring and Evaluation

Monitoring activities on Forests is essential in evaluating the Forest Plans. Monitoring helps determine if the direction of the Forest is being carried out and if that direction is the appropriate direction for management of the land and resources. Both of these aspects of monitoring are important in Rock Creek.

The monitoring and evaluation programs for each Forest's Plan are applicable to the respective portions of the drainage. (Please refer to Chapter V of the Deerlodge National Forest Plan and the Lolo National Forest Plan.)

While many things will be monitored and evaluated during implementation of the plan, attention to the "Blue Ribbon Trout Stream" values are of paramount importance. Current research establishes threshold values. Fishery production is unaffected by sediment increases until threshold values are exceeded.

The monitoring plan for each Forest will guide the monitoring activity in Rock Creek. Several of the concerns are important in Rock Creek because of the issues identified earlier. Forest Plan monitoring items scheduled for Rock Creek will be collected at a frequency at least equal to that presented in the monitoring plan. The plans include a frequency that is averaged across either Forest with the intent to vary actual monitoring dependant upon activities and/or resource values present.

From 1969-1974, 15 stations were established to monitor the aquatic environment and water quality in the Rock Creek drainage. Six of these stations were within the Lolo National Forest and one at the boundary between the Lolo and Deerlodge Forests. The remaining 8 were on the Deerlodge National Forest. The parameters measured varied from station to station but included a wide variety of water quality measurements, temperature, intragravel surveillance, suspended sediment and aquatic invertebrates. Progress reports documented some of the monitoring results, however, much of the data was not reduced. The Montana Department of Fish, Wildlife and Parks has established long-term fish population sampling reaches at three locations on main Rock Creek. The Lolo has completed stream surveys on thge majority of streams allocated to development and data will be entered in the Interagency storage bank.

Purposes for monitoring in Rock Creek include the desire to resolve public concerns related to the potential effect of road development and timber harvest on aquatic values in the Rock Creek drainage. Another purpose is to validate and/or revise management assumptions documented in Forest Plans related to the expected relationships between management activities and water quality, aquatic environment, and fisheries habitat.

The strategy proposed is to concentrate monitoring in those tributary drainages flowing from anticipated project areas, and to reactivate some appropriate main Rock Creek stations that will document effects that may occur in Rock Creek as well as separate influences of the Lolo and Deerlodge portions of the drainage.

In keeping with the intent of the Agreement reached in 1973 among the Lolo and Deerlodge National Forests and the Rock Creek Advisory Committee, all projects capable of having a significant adverse impact on water quality or fisheries habitat will be monitored and the data thoroughly analyzed. Monitoring of projects will include baseline monitoring of the project area at least 2 years prior to project activity and monitoring throughout the activity period. If adverse impacts are detected through data evaluation, monitoring will continue through the recovery period.

Parameters to be measured will, as a minimum, include the following:

Streamflow
Suspended sediment
Temperature
Bedload sediment
Specific conductivity
Macro invertebrates
Intergravel sediment accumulations

Most water quality parameters will be measured approximately 12 to 16 times annually, with sampling frequency skewed toward runoff periods and major storm events. Some natural site conditions may preclude collection of all parameters.

The Region One/Region Four Sediment Model 1/ provides a mechanism to calculate increases in sediment as a result of man's activities. This model has been used to test the validity of the proposed land management direction for the Rock Creek Drainage. The model was applied to each subdrainage within Rock Creek and to the Rock Creek Drainage as a whole. The results from the model shows that the effects of proposed management are below the threshold values for negative impacts to fish populations.

In order to assure the future management does not have negative consequences to the fishery habitat and the "Blue Ribbon Trout Stream" values, the Regione One/Region Four Sediment Model, including its future refinements or more accurate models produced at a later point in time, will be utilized to predict sediment increase for all project activities. The results of that model will be used to design each project so that the cumulative affects of all projects remain below the threshold values for negative impacts to fish populations in all subdrainages. The table appearing on page IV-9 will be used to select mitigation measures for project roads. In addition, invertebrate sampling will be done in each subdrainage to monitor trends of the effects of management activities. Should these measurements indicate problems, management direction adjustments will be made to bring all activities in line with the threshold values mentioned above.

1/ Cline, R., Cole, G., Megahan, W., Patten, R., and Potyandy, J. Guide for Predicting Sediment Yields from Forested Watersheds. U.S. Forest Service, October 1982.

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V. Implementation

A. Introduction

Implementation of the Lolo National Forest Plan requires moving from an existing management program, with a budget and "targets" for accomplishment, to a new management program with a budget, goals, and objectives that provide a different way of addressing the issues and concerns people have voiced about Forest management. This Forest Plan establishes the direction for the Lolo National Forest for the next 10 to 15 years, when used in conjunction with Forest Service Manuals and Handbooks and the Northern Regional Guide.

This chapter explains how management of the Lolo National Forest moves from the Current Direction and Existing Situation to the Proposed Action. The following sections describe aspects of implementation that are influenced by previous management activities and objectives, the relationship between project planning and this Forest Plan, the goals of and requirements for monitoring and evaluation, and the circumstances which could require the Plan to be amended or revised.

B. Influence of Past Management on Future Options

Chapter III defines management direction for specific areas of the Forest. In some instances, this direction represents a change from current management direction. Where no previous management activities have occurred, the allocations of this Forest Plan can be put into effect from a neutral point. However, in areas where management activities have occurred to meet objectives other than those now specified, a transition period may be required to bring management fully into line with this Plan.

In addition to specifying management direction for areas of the Forest, this Plan schedules management activities. In some situations, previous management activities influence the scheduling of future activities. On the Lolo for example, several areas within the Forest boundary actually have an intermingled landownership pattern (alternate sections owned by the Federal Government and private corporations or the State). Within these areas the combined effect of overall past management activities on such resources as wildlife and water may require modifying or delaying future Forest Service projects to allow sufficient vegetative recovery to provide necessary habitat and runoff conditions.

C. Project Planning

The Forest Plan serves as the single land management plan for the Lolo National Forest. All other land management plans are replaced by the direction in this Forest Plan.

Similarly, this Forest Plan directs the management of all resources on the Lolo National Forest. All previous resource management plans are replaced by this document. Resource management objectives are displayed in Chapter II, and schedules of resource management practices for each management area are displayed in Chapter III.

Several documents designed to give further guidance to management activities have been or will be developed under the umbrella of this Forest Plan. These documents which are available on request, are:

Forest Travel Plan
Range Allotment Management Plans
Area Transportation Plans
Ashley Creek Municipal Watershed Management Plan
Fire Management Action Plans
Wilderness Management Plans
Research Natural Area and Botanical Area Management Plans

The management direction provided by this Forest Plan comprises the sideboards within which project planning and activities take place. It defines management area goals and management standards that guide project activities toward achieving a desired future condition for the management area and, collectively, for the Forest. It specifies a schedule for project activities (management practices). It provides guidance concerning land and habitat type constraints including assumptions about the appropriate vegetation management practices. On-the-ground project analysis validates or invalidates the appropriateness of those assumptions.

Within this guidance, the projects are developed to most efficiently and effectively accomplish the management goals and objectives. All NEPA requirements will be complied with in all projects.

Project environmental analyses provide an essential source of information for Forest Plan monitoring. First, as project analyses are completed, new emerging public issues or management concerns may be identified. Second, the management direction designed to facilitate achievement of the management area goals is validated by the project analyses. Third, the site specific data collected for project environmental analyses serve as a check on the correctness of the land allocation. All of the information included in the environmental analyses is used in the monitoring process to determine when changes should be made to the Forest Plan.

As part of project planning, site specific water quality effects will be evaluated and control measures designed to insure that the project will meet Forest water quality goals; projects that will not meet State water quality standards will be redesigned, rescheduled, or dropped.

D. Monitoring and Evaluation

Monitoring and evaluation comprise the management control system for the Forest Plan. This management control system will provide the decisionmaker and the public with information on the progress and results of implementing the Forest Plan.

Monitoring and evaluation entail comparing the end results being achieved to those projected in the Plan. Costs, outputs, and environmental effects, both experienced and projected, will be considered.

To do this a comparison will be made, on a sample basis, of overall progress in implementing the Plan as well as whether the overall relationships on which the Plan is based have been changed over time. When changes occur, they will be evaluated as to their significance, and appropriate amendments or revisions made.

If monitoring can not be accomplished in accordance with the Plan, management activities will be redesigned, rescheduled, or dropped and an amendment to the Plan will be issued. If any event causes a significant change in expected output, a revision will be completed.

The goals for monitoring and evaluating this Forest Plan are to determine:

- How well the Forest is meeting its planned goals and objectives;
- If existing and emerging public issues and management concerns are being adequately addressed;
- How closely the Forest Plan's management standards are being followed;
- If outputs and services are being provided as projected;
- If the effects of implementing the Forest Plan are occurring as predicted, including significant changes in the productivity of the land;
- If the dollar and manpower costs of implementing the Forest Plan are as predicted;
- If implementing the Forest Plan is affecting the land, resources, and communities adjacent to or near the Forest;
- If activities on nearby lands managed by private owners, other Federal or State Governmental agencies, or under the jurisdiction of local governments, are affecting management of the Forest;
- If research is needed to support the management of the Forest, beyond that identified in Chapter II of the Forest Plan; and
- If there is a need to amend or revise the Forest Plan.

The monitoring requirements for this Forest Plan are outlined in Table V.1, Forest Plan Monitoring Requirements. These requirements address the items to be monitored, data sources, cost, expected precision and reliability, frequency of measurements (schedule and sample size), reporting period, and acceptable variability. Most of the monitoring items are applicable to specific management areas; a listing of applicable monitoring items is included in the direction for each management area (Chapter III). The estimated cost of meeting the Forest Plan Monitoring Requirements is displayed in Table V.2. The costs displayed are those needed to perform the specific action required by the monitoring item. The costs do not include the cost of data collection, data maintenance, or systems operation and maintenance unless specifically required by the monitoring plan. Costs will vary from year to year depending on the level of activity on the Forest. The total cost displayed in the table is included in the budget to implement the Forest Plan. Monitoring of the general Forest insect and Disease condition will be accomplished through annual aerial surveys conducted by Cooperative Forestry and Pest Management in the Regioinal Office. The cost of these surveys is also covered by this staff group and is not included in Table V.2.

Other monitoring items are more applicable to broad areas, are Forest-wide in nature, and will be evaluated from such sources as the data base, Forest attainment reports, public involvement processes, and non-Forest Service sources such as communities, downstream users, the Confederated Salish and Kootenai Tribes, and other agencies. These monitoring items include 1-5, 1-6, 2-1, 3-11, 5-2, 6-1, 7-1, 9-1, 11-1, 11-2, 12-1, 12-2, 13-1, 14-1, and 14-2. More specific processes will be developed by functional specialists and be laterally integrated to improve understanding of the total effects of Forest management.

Evaluation of data gathered during monitoring will be guided by the Decision Flow Diagram detailed in Figure V.1. As indicated in the diagram, the results of this evaluation lead to decisions on further action of the following types:

- Continuing the management practice;
- Referring the problem to appropriate line officer for improvement of the application of the management practice;
- Modifying the management practice as a Plan amendment;
- Modifying the land management prescription as a Plan amendment;
- Revising the schedule of outputs;
- Revising the cost unit/output; or
- Initiating revision of the Plan.

The document resulting from the use of the Decision Flow Diagram constitutes the evaluation report. As applicable, the following will be included in each evaluation report:

- A quantitative estimate of performance comparing outputs and services with those projected by the Forest Plan;
- Documentation of measured effects, including any change in productivity of the land;
- Unit costs associated with carrying out the planned activities as compared with unit costs estimated during Forest Plan development;
- Recommendations for changes;
- A list of needs for continuing evaluation of management systems and for alternative methods of management;

- A list of additional research needed to support the management of the Forest; and

- Identification of additional monitoring needs to facilitate achievement of the monitoring goals.

E. Amendment and Revision

The Forest Supervisor may amend the Forest Plan. Based on an analysis of the objectives, standards, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the Plan. If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same procedure as that required for development and approval of a Forest Plan. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, the Forest Supervisor may implement the amendment following appropriate public notification and satisfactory completion of NEPA procedures.

A Forest Plan shall ordinarily be revised on a 10-year cycle or at least every 15 years. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly or when changes in RPA policies, goals, or objectives would have a significant effect on Forest level programs. In the monitoring and evaluation process, the interdisciplinary team may recommend a revision of the Forest Plan at any time. Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of the Forest Plan. The Forest Supervisor shall review the conditions on the land covered by the Plan at least every 5 years to determine whether conditions or demands of the public have changed significantly.

Table V.1

TABLE OF FOREST MONITORING REQUIREMENTS

MONITORING ITEM	SUBJECT	ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	DATA SOURCE	1/ EXPECTED PRECISION	2/ EXPECTED RELIABILITY	3/ FREQUENCY OF MEASUREMENTS	REPORTING PERIOD	VARIABILITY (±) WHICH WOULD INITIATE FURTHER EVALUATION
1-1	WILDLIFE	Elk productivity—total time of human disturbance created by timber management activities.	Timber sale & postsale inspection reports. Miles of open road. The following Montana Dept. of Fish, Wildlife, & Parks information: bull elk harvest rates; hunting season length; & elk populations.	Mod.	Mod.	30% of sales >2 MMBF Annually	5 years	On roads with yearlong closures, timber management disturbance occurring more than 4 years out of 10 years.
1-2		Elk productivity—cover/forage ratios.	Stand exams, aerial photos, reforestation surveys, EA, project files, miles of open road, bull elk harvest rates, hunting season length, & elk populations.	High	Mod.	100% of sales >2 MMBF Annually.	5 years	Any cover/forage ratio below 40/60 in a minimum analysis area of 4,000 acres.
1-3		Monitor effectiveness of old-growth habitat areas that are harvested.	Stand exams and aerial photos.	High	High	100% of timber sales sold	5 years	20% degradation in short run and 10% degradation in long run.
1-4		Postsale snag densities.	Field transects.	High	Low	10% of timber sales sold	5 years	30% or more of transects fail to meet Forest snag prescriptions.
1-5		Acres of threatened and endangered habitat improvement.	Management Attainment Report.	Mod.	High	100% of sales >2 MMBF Annually	5 years	Forest must accomplish 75% of habitat improvements programmed for a 5-year period with at least 50% accomplishment every year.

1/ "Expected Precision" is the exactness or accuracy with which the data will be collected.
2/ "Expected Reliability" is the degree the monitoring accurately reflects the total Forest situation.
3/ "Frequency of Measurements" is the schedule of sampling frequency.

TABLE OF FOREST MONITORING REQUIREMENTS (continued)

MONITORING ITEM	SUBJECT	ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	DATA SOURCE	1/ EXPECTED PRECISION	2/ EXPECTED RELIABILITY	3/ FREQUENCY OF MEASUREMENTS	REPORTING PERIOD	VARIABILITY (±) WHICH WOULD INITIATE FURTHER EVALUATION
1-6	WILDLIFE (con't)	Treated acres of big-game winter range.	Management Attainment Report.	Mod.	Mod.	100% of sales >2 MMBF Annually	5 years	Forest must accomplish 75% of habitat improvements programmed for a 5-year period with at least 50% accomplishment every year.
2-1	AQUATIC ENVIRONMENT AND FISHERIES HABITAT	Improvement of fish habitat.	Management Attainment Report.	Mod.	High	100% sampling Annually	5 years	Forest must accomplish 75% of habitat improvements programmed for a 5-year period with at least 50% accomplishment every year.
2-2		Validation of aquatic habitat quality and fish population assumptions used to predict effects of management activities and an evaluation of actual effects.	Evaluation of the following indicators: aquatic insect density or diversity; fish populations; intergravel sediment accumulations; channel structure changes; and streambank vegetation changes.	High	Mod.	20% sampling Annually	Annual	A decline in aquatic habitat/fish population for more than 1 year.
2-3		Assessment of riparian activities on riparian dependent resources.	Field review of riparian activities and evaluation of stream and lake surveys.	Mod.	Mod.	20% sampling Annually	Annual	Visible or measurable decline in aquatic habitat/fish population for more than 1 year.
3-1	TIMBER	Insure management practices minimize hazards from flood, wind, wildfire, erosion, and other natural physical forces.	EA, project file and field reviews.	Mod.	Mod.	100% project sampling Annually	Annual	Anticipated problem identified in interdisciplinary team review of timber sale.

TABLE OF FOREST MONITORING REQUIREMENTS (continued)

MONI-TORING ITEM	SUBJECT	ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	DATA SOURCE	1/ EXPECTED PRECI-SION	2/ EXPECTED RELIA-BILITY	3/ FREQUENCY OF MEASUREMENTS	REPORTING PERIOD	VARIABILITY (±) WHICH WOULD INITIATE FURTHER EVALUATION
	3-2	Insure establishment of vegetation on temporary roads within 10 years.	EA, project file, timber sale contract, and field reviews.	High	High	1 project/ District Annually	Annual	Departure from management standard to scarify and seed all temporary roads.
3-3		Assure silvicultural prescriptions meet multiple use goals.	EA, project file and field reviews.	High	High	1 project/ District Annually	Annual	Departure from management direction.
3-4		Assure silvicultural prescriptions are not primarily chosen on basis of greatest dollar return or greatest timber output.	EA, project file.	Low	Low	1 project/ District Annually	2 years	Departure from management direction.
3-5		Assure silvicultural prescriptions consider residual trees and adjacent stands.	EA, project file and field reviews.	Low	Low	1 project/ District Annually	Annual	Departure from management direction.
3-6		Assure silvicultural prescriptions are practical.	EA, project file and field reviews.	Mod.	Mod.	1 project/ District Annually	Annual	Departure from management direction.
3-7		Assure silvicultural prescriptions meet legal size limits.	EA, project file and field reviews.	Mod.	Mod.	100% project sampling Annually	Annual	Departure from management standard restricting clearcuts to less than 40 acres.

TABLE OF FOREST MONITORING REQUIREMENTS (continued)

MONI-TORING ITEM	SUBJECT	ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	DATA SOURCE	1/ EXPECTED PRECI-SION	2/ EXPECTED RELIA-BILITY	3/ FREQUENCY OF MEASUREMENTS	REPORTING PERIOD	VARIABILITY (±) WHICH WOULD INITIATE FURTHER EVALUATION
3-8	TIMBER (con't)	Assure selected sale alternative provides for plant/animal community diversity.	EA, project file, stand exams, regeneration surveys, and field reviews.	High	High	1 project/ District Annually	5 years	Departure from management direction.
3-9		Assure harvest on unsuitable lands will meet other resource needs.	EA, project file and field reviews.	High	High	1 project/ District Annually	Annual	Departure from management direction.
3-10		Assure timber sold does not exceed allowable sale quantity for 10-yr. period.	Timber Sale Accomplishment Report	High	High	100% sampling Annually	Annual	Departure from 10-year allowable sale quantity.
3-11		Assure restocking within 5 years.	Reforestation accomplishments reported in Timber Stand Data Base.	High	High	100 Percent Sample Annually	Annual	Development of regeneration backlog.
3-12		Assure silvicultural treatments (harvest, thinning, etc.) are planned and accomplished as projected in Forest Plan.	Silvicultural prescriptions, Timber Stand Data Base.	High	High	100 Percent Sample Annually	Annual	Departure from 10 year output schedule.
3-13		Insure harvest by even-age management is compatible with other resource values.	EA, project file and field reviews.	Mod.	Mod.	1 project/ District Annually	Annual	Departure from management direction.
3-14		Assure harvest will not promote disease and insect increases.	EA, project files and stand files.	Mod.	High	1 project/ District Annually	Annual	Increases in insect/disease problems following logging.

TABLE OF FOREST MONITORING REQUIREMENTS (continued)

MONITORING ITEM	SUBJECT	ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	DATA SOURCE	1/ EXPECTED PRECISION	2/ EXPECTED RELIABILITY	3/ FREQUENCY OF MEASUREMENTS	REPORTING PERIOD	VARIABILITY (±) WHICH WOULD INITIATE FURTHER EVALUATION
3-16	TIMBER (con't)	Review timber suitability of lands classified as unsuitable.	Forest Plan Data Base	High	High	100% project Sampling Annually, 100% Forestwide in 10-year period	10 years	Classification of lands as suitable.
4-1	WATER AND SOIL	Validation of sediment and water yield assumptions used in plan. (For "R-1/R-4" or current sediment yield model)	Flow measurements and sediment sampling of streams representative of Forest Plan land classes.	Low	Mod.-Low	12-16x/year 100% sampling of hydrol types types Annually	Annual	30% variability from sediment yields used in the model.
4-2		Monitor for compliance with existing State and Federal water quality statutes.	Flow measurements and water quality sampling in streams representative of Forest Plan land classes.	Low	Mod.	12-16x/year 100% sampling of hydrol types Annually	Annual	Activities not meeting State and Federal water quality standards, or leading to long-term degradation of aquatic environment.
4-3		Monitor the effect of soil disturbance/displacement on land productivity.	Measurements of soil compaction, soil displacement, and biomass left on site.	Mod.	Mod.	1 sale/ District Annually	Annual	Movement or compaction of soils reducing productivity more than 20%.
5-1	RECREATION	Limit off-road vehicle damage.	Field observaton of identified areas.	Mod.-Low	Mod.-Low	Ongoing	2 years	When use conflicts with management goals of area.
5-2		Provide opportunities for a wide spectrum of recreation activities.	RIM Use Records, Recreation Opportunity Guide, MDFWP Hunter Information, Travel Plan Trail Assessment, and Limits of Acceptable Change.	Mod.-Low	Mod.-Low	100% sampling	Annual	± 25% of target projected in Recreation Opportunity Inventory.

TABLE OF FOREST MONITORING REQUIREMENTS (continued)

MONI-TORING ITEM	SUBJECT	ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	DATA SOURCE	1/ EXPECTED PRECI-SION	2/ EXPECTED RELIA-BILITY	3/ FREQUENCY OF MEASUREMENTS	REPORTING PERIOD	VARIABILITY (±) WHICH WOULD INITIATE FURTHER EVALUATION
5-3	RECREATION (con't)	Compare changes in acres and distribution of Roadless lands with plan projections.	Forest Data Base, 5-Year Sale Program, Timber Stand Data Base, Management Attainment Reports, RARE II, Updated Roadless Inventory.	High	High	100% sampling Annually	5 years	Changes different from what was projected.
6-1	RANGE	Livestock forage available (AUM's).	Range analyses and allotment mgt. plans.	High	High	100% sampling Annually	Annual	± 10%
6-2		Assure range allotment management plans are compatible with Forest Plan direction.	Range Analysis and Utilization Reports.	High	High	1 plan/ District Annually	Annual	Departure from management direction.
7-1	ROADS	Assure open road densities are in accordance with Forest Plan direction.	Forest Travel Plan, Transportation System.	High	High	100% sampling Annually	2 years	Greater than 20% annually or 10% on a 5-year average.
7-2		Review of road construction.	Construction contracts and constructed roads.	Mod.	Mod.	1 project/ District per year.	Annual	Road construction resulted in unacceptable resource damage or beyond construction tolerances.
7-3		Review of road design and construction standards.	Road design packages and timber sale reviews.	High	High	1 sale per District per year.	Annual	Designs beyond the limits of the standards.
7-4		Monitor road density deviations from those projected in plan.	EA, project files, Transportation Inventory System, Project Transportation Plans.	Mod.	Mod.	100% sampling Annually	Annual	Departure from management direction.

TABLE OF FOREST MONITORING REQUIREMENTS (continued)

MONITORING ITEM	SUBJECT	ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	DATA SOURCE	1/ EXPECTED PRECISION	2/ EXPECTED RELIABILITY	3/ FREQUENCY OF MEASUREMENTS	REPORTING PERIOD	VARIABILITY (±) WHICH WOULD INITIATE FURTHER EVALUATION
8-1	MINERALS	Review of Forest Service projects that may have an effect on minerals activities. Review of mining activities affecting surface land management.	Monthly mineral progress report, operating plans, leases, and permits.	High	High	100% sampling Annually	Annual	Any adverse effect of Forest Service project on mineral activities, or any departure from approved operating plans, leases, and permits.
9-1	ECONOMICS	Verification of unit costs used in FORPLAN.	Timber sale appraisals and contracts, and the accounting system.	High	High	100% sampling Annually	Annual	In general, ±25% variation would trigger need to rerun FORPLAN.
10-1	VISUAL QUALITY	Monitor project and activity compliance with visual quality objectives.	Special use, EA project files, and field reviews.	High	High-Mod.	2 sales/ District Annually	Annual	Failure to meet intended VQO.
11-1	FIRE	Assure prescribed fire meets air quality guidelines and standards.	Burning treatment plans and local air quality offices.	High	High	100% sampling Annually	Annual	Burning without required permit.
11-2		Assure accomplishment of fuel treatment targets.	Management Attainment Reports.	High	High	100% sampling Annually	Annual	Less than 75% of Forest Plan Projections.
11-3		Evaluate impact of wildfire losses on management area targets.	Incident Fire Reports.	High	High	100% sampling Annually	10 year	Wildfire losses 100% above PARS prediction by MA for decade.

TABLE OF FOREST MONITORING REQUIREMENTS (continued)

MONI-TORING ITEM	SUBJECT	ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	DATA SOURCE	1/ EXPECTED PRECI-SION	2/ EXPECTED RELIA-BILITY	3/ FREQUENCY OF MEASUREMENTS	REPORTING PERIOD	VARIABILITY (±) WHICH WOULD INITIATE FURTHER EVALUATION
12-1	ADJACENT LANDS, RESOURCES, & COMMUNITIES	Effects of Forest management on local economy, recreation opportunities, downstream water uses, visual quality, local air quality.	Reports from appropriate monitoring items listed above; new public issues and management concerns.	Mod.	Mod.	100% sampling every 5 years	5 years	Unacceptable results of an ID Team review.
12-2		Impact of activities on adjacent lands on Forest goals and objectives.	Reports from appropriate monitoring items above; review of other agency plans; new public issues; management concerns.	Mod.	Mod.	100% sampling every 5 years	5 years	Unacceptable results of an ID Team review.
13-1	LANDS	Evaluate progress of landownership adjustment program.	Management Attainment Report, Land Exchange File	High	High	100% sampling Annually	Annual	N/A
13-2		Insure major utility and transportation systems are developed within identified corridors.	EA, project file.	High	High	100% sampling Annually	During project const.	Deviation from identified corridors.
13-3		Assure proposed R/W grants are in identified corridors.	Project review and ROW grants.	High	High	100% sampling Annually	Annual	Any project outside identified corridor.
14-1	PROCESS	Track emerging issues or changing social values.	Information and Involvement Plan.	N/A	N/A	Ongoing	Ongoing	If issues fall within scope of interest levels 1 and 2 of Information and Involvement Plan.
14-2		Correct errors in original land allocations and evaluate effect of all changes on plan.	Data Base Change Request forms and Data Base Update	High	High	100% sampling annually	Annual	Changes impacting projected targets.

Table V.2. Monitoring Plan Cost (1978 dollars)

Items	Subject	Change in Annual Costs1/	Current Annual Costs2/
1-1 thru 1-6	Wildlife	$ 3,500	$ 11,900
2-1 thru 2-3	Aquatic Environment and Fisheries Habitat	11,800	10,500
3-1 thru 3-15	Timber	-0-	57,800
4-1 thru 4-3	Water and Soil	34,800	12,500
5-1 thru 5-3	Recreation	700	32,300
6-1 thru 6-2	Range	-0-	500
7-1 thru 7-3	Roads	-0-	12,100
8-1	Minerals	-0-	4,800
9-1	Economics	-0-	8,000
10-1	Visual Quality	-0-	7,500
11-1 thru 11-4	Fire	-0-	11,500
12-1		-0-	2,000
13-1 thru 13-2	Lands	-0-	5,500
14-1 thru 14-2	Process	-0-	12,000
	TOTAL	$ 50,800	$ 188,900

1/ Increase in cost above current annual.

2/ Cost before implementation of Forest Plan.

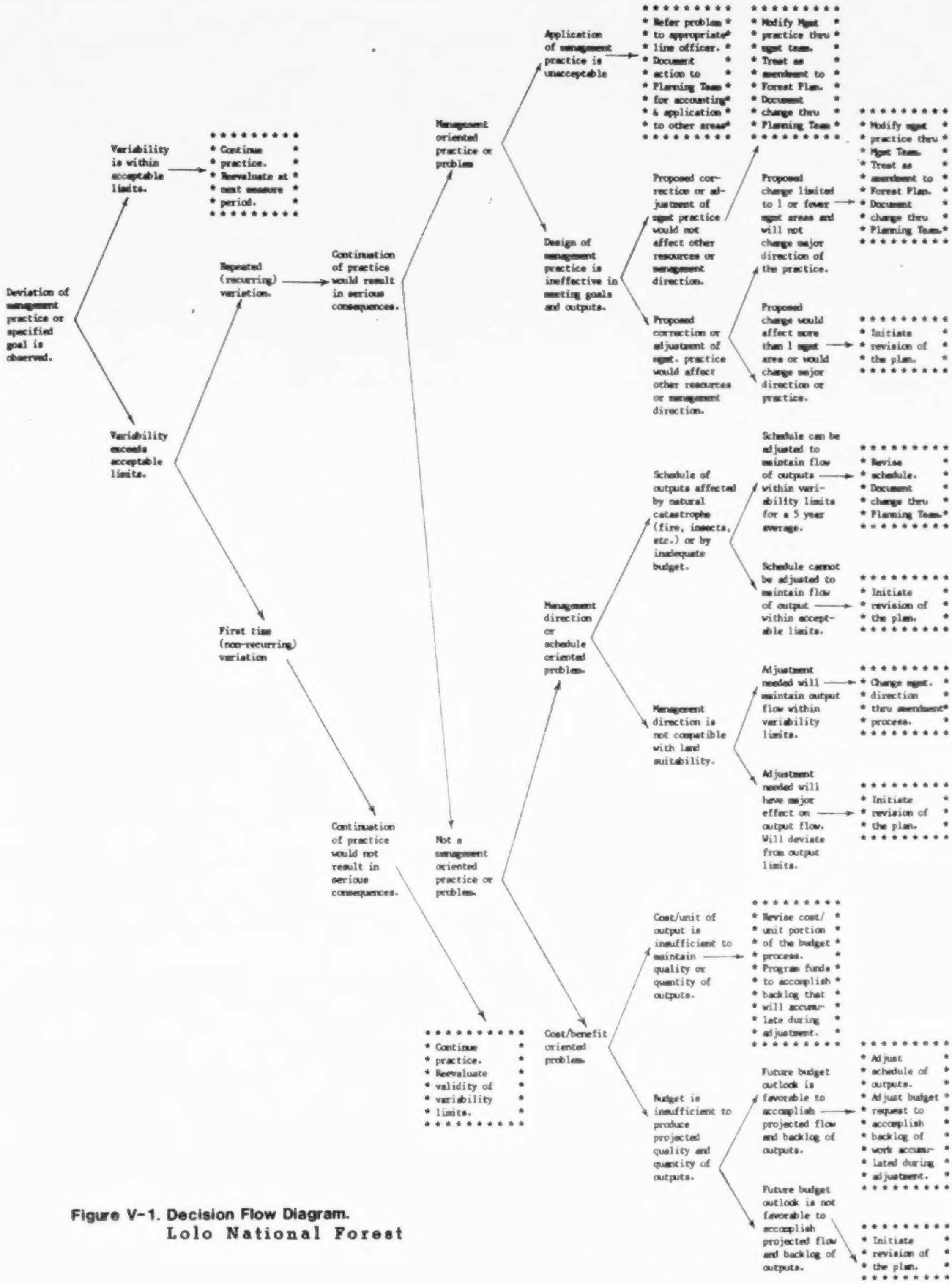
Deviation of management practice or specified goal is observed.
Variability is within acceptable limits.
Continue practice. Reevaluate at next measure period.
Variability exceeds acceptable limits.
Repeated (recurring) variation.
Continuation of practice would result in serious consequences.
Management oriented practice or problem
Application of management practice is unacceptable
Refer problem to appropriate line officer. Document action to Planning Team for accounting & application to other areas
Modify Mgmt practice thru mgmt team. Treat as amendment to Forest Plan. Document change thru Planning Team
Design of management practice is ineffective in meeting goals and outputs.
Proposed correction or adjustment of mgmt practice would not affect other resources or management direction.
Proposed change limited to 1 or fewer mgmt areas and will not change major direction of the practice.
Modify mgmt practice thru Mgmt Team. Treat as amendment to Forest Plan. Document change thru Planning Team.
Proposed correction or adjustment of mgmt. practice would affect other resources or management direction.
Proposed change would affect more than 1 mgmt area or would change major direction or practice.
Initiate revision of the plan.
First time (non-recurring) variation
Continuation of practice would not result in serious consequences.
Continue practice. Reevaluate validity of variability limits.
Not a management oriented practice or problem.
Management direction or schedule oriented problem.
Schedule of outputs affected by natural catastrophe (fire, insects, etc.) or by inadequate budget.
Schedule can be adjusted to maintain flow of outputs within variability limits for a 5 year average.
Revise schedule. Document change thru Planning Team.
Schedule cannot be adjusted to maintain flow of output within acceptable limits.
Initiate revision of the plan.
Management direction is not compatible with land suitability.
Adjustment needed will maintain output flow within variability limits.
Change mgmt. direction thru amendment process.
Adjustment needed will have major effect on output flow. Will deviate from output limits.
Initiate revision of the plan.
Cost/benefit oriented problem.
Cost/unit of output is insufficient to maintain quality or quantity of outputs.
Revise cost/unit portion of the budget process. Program funds to accomplish backlog that will accumulate during adjustment.
Budget is insufficient to produce projected quality and quantity of outputs.
Future budget outlook is favorable to accomplish projected flow and backlog of outputs.
Adjust schedule of outputs. Adjust budget request to accomplish backlog of work accumulated during adjustment.
Future budget outlook is not favorable to accomplish projected flow and backlog of outputs.
Initiate revision of the plan.

Figure V-1. Decision Flow Diagram.
Lolo National Forest

VI. Summary of the Analysis of the Management Situation

A. Introduction

The Analysis of the Management Situation (AMS) is a determination of the Forest's ability to supply goods and services in response to society's demand. The primary purpose of this analysis is to provide a basis for formulating a range of reasonable alternatives (36 CFR 219.12(e)).

The basis for formulating alternatives was established in part by "benchmark levels" which were determined using various objectives, constraints, and assumptions in the FORPLAN computer model. Six benchmark levels were developed for the Lolo Forest:

Benchmark h	Maximum present net value (PNV)--maximizes present net value for the Forest.
Benchmark i	Maximum timber/range--maximizes the timber and range outputs.
Benchmark j	Maximum wildlife--maximizes the Forest capacity to support wildlife.
Benchmark k	Maximum wilderness--maximizes the area that can be classified as wilderness and includes existing wilderness, RARE II and unit plan roadless areas.
Benchmark l	Minimum level--displays the minimum outputs associated with custodial management of the Forest.
Benchmark m	Constrained budget/current direction--displays the outputs if current direction and current budget are maintained.

Each resource element (e.g., range, recreation, timber) has a discussion about demand, supply under current management situation, maximum production potential, and opportunities for use and development.

Information presented in this summary has been taken from resource and use assessments; FORPLAN model production runs; review of other agency, Government, and Indian Reservation land use plans and policies; research publications; and public expression of needs and demands.

The demand condition, supply condition, resource potential, and use and development opportunities are addressed for each resource or activity. In each of the major land-based resource areas, the maximum production potential is presented, which is the potential of the Forest to produce each resource to the maximum without regard for administrative or legal constraints except those necessary to protect the soil and water. Each maximum benchmark, except maximum PNV which has sequential upper and lower grounds, is also subject to the even flow timber harvest constraint to help ensure that the productivity of the land is not diminished. Maximizing the production of a given resource decreases the ability to maintain production levels of others. Under actual management conditions, maximum production of resources cannot be realized because of the interrelationships between resources.

Economic demand and supply are used to establish values and output levels for resources and for economic analysis of all alternatives considered. Supply and demand estimates are also used to provide an indication of which side of the supply-demand situation is likely to be critical as a limiting factor for each resource output.

Economic demand refers to the quantity of a good or service that will be purchased at a given price, while supply is the quantity of goods or services that will be provided at various price levels. Demand and supply can be difficult if not impossible to determine in the absence of well defined markets, if the amount demanded or supplied by any one source is a small proportion of the total, or if products do not enter traditional markets (e.g., recreation). One or more of these problems applies to all Lolo Forest outputs. Without traditional economic demand and supply relationships, other methods must be found to provide similar information for economic analysis.

Expected utilization of a resource output is based on trends of actual utilization and is used as an estimate of demand. Such expected utilization estimates from RPA for recreation, water and range, disaggregated to the Forest level, are not true demand estimates since no price-quantity relationships are assumed. Willingness-to-Pay (WTP) values from RPA are used as proxy values to accompany the utilization estimates. Timber values are based on historical prices paid for Lolo Forest timber during the period fiscal year 1976 through fiscal year 1980. Timber output levels are controlled by the level of other resource outputs and the economic suitability of timber harvest.

Maximum production benchmarks consider the supply potential only and ignore the associated demand aspects. For this reason, economic analysis of maximum resource benchmarks tends to be misleading, depending on the disparity between equilibrium output levels and maximum output levels.

B. Summary of Demand, Supply, Resource Potential, and Use and Development

1. Demand Condition

a. Range

Per capita consumption of beef has been declining in recent years. Population growth may still result in an overall increased demand for beef.

Demand for livestock grazing is expressed by local ranchers when they file applications for permits. Many existing permittees have expressed a need for more range than is available for use. In addition, occasional applications are submitted by ranchers not now holding permits.

Historical data from 1960 through 1979 for the three-county "market area" of Missoula, Mineral, and Sanders Counties show a range of cattle and calves from 56,000 to 36,900 head, with a mean of 48,600. A linear trend line for this period shows an average annual decline of 3,770 head. The sharp decline in numbers from 1976 through 1979 was largely influenced by weather and market conditions and may not be indicative of future trends. An extension of the historical trend for Montana cattle and calves from 1900 through 1980 would project a 46 percent increase in numbers from 1980 to 2030. This rate of increase in cattle numbers is consistent with projected increases in the level of grazing AUM's produced on the Lolo Forest, and projected out to 2030. RPA grazing projections for the Lolo Forest increase by 39 percent from a 1980 level of 14,300 AUM's to 20,000 AUM's in the year 2030. These projections are similar to State-level changes in total cattle and seem reasonable estimates to include in the Forest Plan.

b. Recreation

Recreation use has grown 25 percent from 1,052 MRVD in 1970 to 1,390 MRVD in 1980. About 20 percent occurred in developed sites and 80 percent in dispersed areas and wilderness. For our purposes, developed recreation is the same as Type V, and refers to developed camping and skiing. Dispersed recreation is composed of Type I-IV and includes hunting, fishing, tent camping, hiking, and other dispersed, nondeveloped activities.

Based on recent survey data, utilization of recreation Types I-V is far less than amounts available. Since no fees are charged for dispersed recreation, there is no economic demand function available. Supply of recreation is expected to exceed the amount utilized into the foreseeable future, with the exception of several popular developed sites during specific high-use periods such as the 4th of July and Labor Day weekend. Only the amount of recreation actually utilized is valued, using the Willingness to Pay (WTP) values established by RPA. The WTP values used in the Forest planning model are as follows:

Type I - \$12.57/RVD
Type II - \$15.24/RVD
Type III - \$ 3.00/RVD
Type IV - \$ 3.00/RVD
Type V - \$ 3.00/RVD

The projected amounts of recreation utilization, based on RPA estimates, are presented in Table VI.1. In fiscal year 1980, there were an estimated 276,200 RVD's of developed recreation utilized on the Lolo and 1,113,500 RVD's of dispersed recreation.

Table VI.1: RPA Estimates* of Recreation Utilization by Time Period, Lolo National Forest

	1982-1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
	- - - - - - - - -	thousand	RVD's	- - - - - - - - -		
Developed Recreation	290.0	355.0	392.6	374.9	385.9	405.1
Dispersed Recreation	1,169	1,204	1,283	1,392	1,478	1,536

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*These estimates represent the Lolo National Forest's share of the RPA program for the Northern Region.

It is assumed that recreation on the Forest will be utilized at the RPA level. These estimates appear to be consistent with utilization estimates. The present potential supply of recreation opportunities exceeds expected utilization according to RPA projections, with the exceptions previously noted. The RPA level thus becomes the upper limit on the amount of recreation valued at WTP values since excess supply has no economic value.

It is assumed that the present proportions of Type I-IV recreation in the dispersed recreation category will remain constant over time. Therefore, Table VI.2 presents the RPA projections of recreation disaggregated over time by recreation type.

Table VI.2: Recreation - Estimated Utilization by Time Period, Disaggregated From RPA (1,000 RVD's)

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Type I	16.7	18.0	22.2	22.2	22.2
Type II	323.0	359.2	372.0	413.8	430.1
Type III-IV	814.0	905.8	982.7	1043.5	1084.4
Type V	353.0	392.6	374.9	385.9	405.1

c. Wilderness

Recently wilderness recreation use has increased over previous levels as more areas, such as the Rattlesnake and Welcome Creek, have been designated as wilderness. The proximity of these areas to population centers and the notoriety of wilderness designation will generate some increase in use as well as the traditional despersed recreation users of the area which are now being reclassified as wilderness users.

d. Timber

There has been a reduced demand for sawtimber sales from the Forest. The principal reasons are that harvests on the surrounding and intermingled private lands have substantially increased, thus providing more of the raw material needs of the industry; and for approximately the past 4 years, home construction throughout the United States has been severely depressed and the timber market has likewise suffered. These are expected to be temporary conditions which will change in the future as private land inventories are reduced and the housing demand increases.

"Demand" analyses by Manthy* and Cox** for Lolo Forest timber used different techniques to determine utilization. There were not true demand studies since no price-quantity relationships were determined or projected. Manthy focused on headrig capacity, arguing that mill operators are primarily concerned with keeping their mills operating at full output. In the short run, this is a reasonable assumption; but the Forest Plan considers a long time period during which this assumption is not valid. At the present time in the local market area, mill closures indicate that mills are eventually shut down when they cannot be operated profitably.

The work by Cox concentrated on utilization of timber at the national level, the local stumpage market over the period 1970 through 1977 and the Lolo share of the local timber market in 1970 and 1975. At the State level, in 1969 the National Forests supplied 61.4 percent of all timber harvested, while private lands provided 25.8 percent. By 1978, the National Forest's share had decreased to 39.1 percent of the total harvest while timber harvest from private lands had almost doubled to 53.5 percent.

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*Manthy, Robert S., "Timber Demand on the Lolo National Forest," unpublished report prepared under contract for the U.S. Forest Service, August 1979.

**Internal unpublished report on timber demand by Roger Cox, 1978.

VI.3: Historical and Estimated Timber Utilization (MMBF)

		1982-1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
RPA 1/		132	144	155	175	193	215

		1980	1985	1990
Manthy	High	136	170	188
	Low	132	142	142

	1970	1971	1972	1973	1974	1975	1976	1977	1978
Cox	141	165	100	119	126	98	97	84	61

1/ These estimates represent the Lolo National Forest's share of the RPA targets for the Northern Region.

Timber industry sources indicate that they will not be able to maintain their present level of timber harvest from private lands. Thus, as demand increases, the National Forests will either have to increase their sell or the total volume of timber in the market area will drop. The RPA timber harvest estimates are compared with estimates by Manthy and historical harvest levels reported by Cox (Table VI.3). The maximum allowable annual cut under current management direction, with the timber supply reduced in recognition of other resource needs, is calculated to be 164 million board feet per year. This level is below both the RPA and high Manthy estimates. This adds support to the assumption that within timber output levels reasonable for the Lolo, there will be adequate demand for the timber and the supply of timber will be the limiting factor.

In the past decade the Lolo National Forest has supplied approximately 10 to 20 percent of the timber utilized in the counties that process Lolo timber. Table VI.4 shows the county destination by origin of timber for the year 1975, and Table VI.5 shows the source of sawtimber utilized by county in 1976. The general trend in Region 1 has been for a greater proportion of timber volume to come from private industrial lands. It is assumed that this is the case in the Lolo's market area, although detailed data to substantiate this are not available. It will not be possible to sustain the timber volumes from private lands in the Lolo market area beyond the next 15 to 20 years. After that time, either the total volume utilized in the market area will decline, or the volume of timber from the Lolo and other public lands will have to increase.

Table VI.6 presents two estimates of mill capacity in the Lolo market area. Since these data were collected, the Evans Products Company in Missoula and Washington Idaho Corporation in Plains have gone out of business, resulting in a decline of 91 MMBF/year capacity. The Stone Paper Corporation pulpmill in Frenchtown has expanded its capacity, but there are no estimates available of the amount of new capacity.

Product markets for mill outputs are listed in Table VI.7.

Table VI.4: County Destination by Origin of Timber, 1975 Volume (MMBF)

County	Lolo Volume	Other NF Volume	Private Other Public	Total
Flathead	8.2	132.1	56.5	196.8
Mineral	23.9	0	0.7	24.6
Missoula	44.7	16.9	280.1	341.7
Sanders	18.7	14.4	27.6	60.7
Other	0.4	25.1	16.6	42.1
SUBTOTAL	95.9	188.5	381.5	665.9
% of TOTAL	14.4	28.3	57.3	

Source: Schuster, E.G., Montana's Timber Harvest and Timber-Using Industry: A Study of Relationships, Bulletin 41, School of Forestry, University of Montana, 1978.

Table VI.5: Source of Sawtimber Utilized, 1976 Volume (MMBF)

County	Lolo Volume	Other NF	Other Public	Private	Total
Lake	41	12	16	269	338
Missoula					
Mineral	25	36		45	106
Sanders					
SUBTOTAL	66	48	16	314	444
% of TOTAL	14.8	10.8	3.6	70.7	

Source: Bureau of Business Research, Montana Forest Industries Data Collection System, Missoula, Montana, 1980.

Table VI.6: Mill Capacity Estimates for Lake, Missoula, Mineral, and Sanders Counties, 1976 and 1977 (MMBF/Year)

County		1977 1/		1976 2/	
Missoula	-	Sawmill	240		
	-	Plywood	142	Sawmill & Plywood	365
Lake	-	Sawmill	62		
Mineral	-	Sawmill	49		
Sanders	-	Sawmill	110	Sawmill	134
TOTAL			603		499

1/ 1979 Directory of the Forest Products Industry.
2/ Bureau of Business Research, Montana Forest Industries Data Collection System, Missoula, Montana, 1980.

Table VI.7: Shipments of Lumber and Plywood from Manufacturers in Lake, Missoula, Mineral, and Sanders Counties, 1976

Market Area	Value of Lumber and Plywood (Thousands of Dollars)
Far West	1,399
Rocky Mountain	2,798
North Central	10,259
South	2,098
Northeast	1,166
Export	699
Unknown	1,865
TOTAL	23,315

Source: University of Montana, Bureau of Business Research, Montana Forest Industries Data Collection System, Missoula, Montana, 1980.

The demand for multispan yarding systems will increase. Several timber sales which utilize this skyline harvesting method have already been designed on the Forest.

Until such time as improved growing stock is available through the genetic tree improvement program, emphasis will remain on achieving natural regeneration. Presently, western white pine that displays genetic resistance to blister rust is available and being used on the Forest. It will be several years before other species become available for operational reforestation efforts.

e. Water and Soils

Man's activities in the forest generally result in increases in water yield. It is assumed that these increases occur during the spring runoff months. During this period, there are excess amounts of water available for local livestock, irrigation, domestic, and municipal uses. This is also the period when there is excess water in the Pacific Northwest hydroelectric generating system. As with recreation, excess supplies of output have no value. A comparison of average annual water use and average discharge, Table VI.8, substantiates the assumption that there is currently a large excess supply of water from the Forest. Because of the excess supply, changes in the amount of water that result from Forest activities are not of importance in a demand-supply context.

Table VI.8: Annual Water Use 1/ and Average Discharge 2/ - Columbia River Basin 3/

Irrigation		Uses Other 4/ Than Irrigation		Basin Total		Average
Withdrawal	Depletion	With-5/ drawal	Deple-6/ tion	Withdrawal	Depletion	Discharge
2,210	1,040	172	46	2,382	1,086	26,610

1/ Source: DNRC; April 1975, Water Use in Montana, pp. 7-11. These estimates are based upon 1970 water use data.

2/ Source: USGS; 1977, Water Resources Data for Montana: Water Year 1976.

3/ Columbia River Basin figures combine estimates for the Kootenai River and Clark Fork of the Columbia River in Montana.

4/ Uses other than irrigation include thermal-electric energy production, self-supplied industry, municipal and industrial, livestock, and rural domestic water use.

5/ Withdrawals are from both surface and ground water sources.

6/ Nonirrigation depletions are estimated by applying Statewide average depletion rates for each nonirrigation use to the level of withdrawal for that use in each basin.

In the local situation, most larger streams are over appropriated for off-Forest uses. As the State of Montana adjudicates water right holdings, there will be more demand on all sources of water. Certain quantities of water are required to meet National Forest needs and uses and will be maintained by State adjudication, Federal/State compacts, or through water use limitations in Federal permits. National Forests have a right to quanitities of water for administrative uses and other uses on National Forest lands such as irrigation, recreation, stock and fish and wildlife. These quantities will be resolved during adjudication. Within this decade, there will be demands on water originating on the Forest which will probably not be satisfied from individual watersheds.

f. Wildlife and Fish

Public demands express the desire to manage habitat for all species of wildlife and fish to some degree, and emphasize management of deer and elk habitat to maintain or increase population levels. Habitat will continue to be impacted in the future as rural subdivision depletes winter range on the lower elevation private lands. As this occurs, the demand trend is expected to reflect a need for more intensive management on National Forest System lands to counteract this habitat loss.

There is currently a moderate demand for harvestable trout populations. This demand, however, is not the same across the Forest. Larger streams receive disproportionately higher use per surface acre than the smaller streams. Road access heavily influences this use distribution. Demand is expected to increase somewhat proportionately to local population increases, but may be offset by a decrease in out-of-state visitation as energy costs climb. Habitat quality declines on private land will probably shift recreation fishing use to Forest streams.

g. Lands

Future demands for the private use of National Forest System land are expected to continue at the current rate for most uses. Requests for utility and transportation rights-of-way may increase as private lands are subdivided and developed. The following case load is indicative of demands:

Type of Use	Current Applications
Agriculture	1
Transportation	8
Utilities and Communications	4
Other	10
Right-of-Way Acquisition	31

Regional demands for long distance, east-west lines are high and evident, with coal fields to the east of the Forest and load centers to the west, and the past proposal for a major west-to-east pipe line. A 1977 publication by the Bonneville Power Administration, Pacific Northwest Long Range East-West Energy Corridor Study draft, displays the long range energy "windows" (route segments through the mountainous terrain suitable for locating energy transmission facilities; based solely on physical and climatic features) that may be needed by the year

2020. Land constraints to the north and south of the Forest (wildernesses and high mountainous terrain) provide a funneling effect, making it probable that most of the major east-west corridors are likely to cross the Forest. Impacts from these major corridors will be significant, as clearings up to 600 feet wide are expected. Environmental considerations must be put into persepctive with reliability, cost, and public safety factors.

Land exchange is expected to include 3,427 acres of offered lands and 762 acres of selected National Forest System lands. Landline location will achieve 44 miles of boundary line marked and posted in response to the need to identify ownerships.

The guidelines for landownership adjustment and proposed program are contained in Appendix I to the proposed Forest Plan. Guidelines for the selection of lands to be acquired and for lands that would be considered for disposal, along with acquisition priorities and projects are documented in the appendix.

h. Minerals

Current mineral-related activity within the Forest is associated with the search for energy (leasable) minerals and hard rock (locatable) minerals. A continuing search for these comodities is expected as a result of the Nation's increasing minerals and energy dependency on foreign sources of supply. For example, the 1984 Mineral Commodity Summary published by the U.S. Bureau of Mines notes that the United States currently imports 37 percent of its petroleum, 63 percent of its antimony, 16 percent of its gold, 61 percent of its silver, 21 percent of the copper, 18 percent of its lead, and 67 percent of its zinc. All of these minerals are suspected or are known to occur in the Lolo National Forest.

i. Facilities

An increase of approximately 4 percent (compound) per year is evident for the noncommercial vehicle traffic on the Forest arterial and primary collector road systems. This has been computed from extensive traffic monitoring surveys conducted on the Forest.

The commercial traffic is related to the volume of timber harvested and hauled per season, and can be estimated for future years by computing this relationship.

2. Supply Condition

a. Range

During the 1980 grazing season, 71 grazing permits were issued, authorizing approximately 2,100 cattle and horses to graze for about 10,300 animal unit months (AUM's) and authorizing 1,800 AUM's of nonuse. In addition, an estimated 400 head of pack and saddle animals were allowed to graze about 900 AUM's under "free use" for recreational and administrative pruposes. Permits were also issued to allow an additional 1,100 head of livestock to graze approximately 5,900 AUM's on waived private lands located within National Forest range allotments.

Currently, there are 128 range allotments on the Forest. Fourteen of these are wilderness packstock allotments. Outside wilderness, 65 allotments (60 percent) are active and 49 allotments (40 percent) are inactive. An analysis is needed on about 26 inactive allotments to determine possible need for closure due to resource conflicts, or because forage production has been substantially reduced through plant succession.

Forest range managers are attempting to bring allotments under improved management. A goal has been set to have a current management plan in use on each allotment within 10 years. At present, only 30 percent of the Forest's allotments have up-to-date management plans. The rest either have no plan or plans which are so old they no longer reflect the existing situation. For example, many plans were written in the early 1960's. Since then, much of the transitory range has returned to sapling timber stands, new areas have been cutover, and many miles of road constructed, thus changing the location of forage areas and patterns of livestock movement. The interrelationships, including conflicts, between livestock and wildlife use in the riparian area have also become better understood.

Range on the Lolo typically provides grazing for 3 to 4 months, giving ranchers an opportunity to produce a hay crop and other forage to support the animals the remainder of the year.

b. Recreation

The Lolo Forest offers the visitor a wide variety of environments suitable for both developed and dispersed recreation activities. The public is becoming more aware of the opportunities and use is increasing for most activities including camping, picnicking, hiking, horseback riding, trail biking, bicycling, cross-country skiing, snowmobiling, and boating.

Developed Sites in the Public Sector. Developed sites received approximately 205,300 recreation visitor days (RVD's) in fiscal year 1980. This is about 15 percent of the Forest's total recreation use. These sites have a capacity to accommodate about 3,500 people at one time. Nearly half receive more than 40 percent of their theoretical potential use each year; the 40 percent use level is considered optimal. Popular sites, such as destination campgrounds near lakes or other attractions, are full on holidays and other popular weekends. Vegetation and soils at some of these sites reflect use levels which cannot be sustained without deterioration. Other developed sites, located in more remote locations, receive much lighter use and costs of operation are high when assessed against actual use.

Developed Sites in the Private Sector. Private concessionaires provide both facilities and services to accommodate a wide variety of recreation activities on the Forest. Examples include downhill skiing, boating, swimming, trail riding, hunting, and fishing. Use of these areas amounted to 70,900 RVD's, or 5 percent of the total recreational use on the Forest during fiscal year 1980.

Dispersed Recreation Areas/Opportunities. Fiscal year 1980, use of dispersed areas totaled approximately 1,113,500 RVD's or 80 percent of the total Forest use. Much of this use takes place near population centers or in the vicinity of developed sites and resorts. The more popular activities include hunting, fishing, hiking, horseback riding, motor touring, berrypicking, firewood gathering, cross-country skiing, and use of the wilderness system. A variety of conflicts arise from time to time between groups using the Forest for recreational activities.

The Forest's trail system is the most important dispersed recreation facility. In the 1950's the trail system totaled more than 3,500 miles; today there are less than 1,900 miles. Many trails have been abandoned because of road construction or inadequate trail maintenance. Several trail access points are now blocked because of posted private land.

The city of Missoula is somewhat unique from the standpoint of having high quality recreation land at its doorstep. Areas such as Pattee Canyon, Blue Mountain, Fort Fizzle, and the Rattlesnake National Recreation Area and Wilderness (RNRAW), fill a variety of recreation needs for a wide range of activities. While these areas fill an important role for many people, they also are the scene of a variety of nonconforming uses such as destructive parties, vandalism, dumping, littering, ORV trespass, and careless shooting. These areas are expensive to manage because of the need for constant patrol, visitor contact, cleanup, and repair or replacement of damaged facilities.

c. Wilderness

The Forest currently contains all or portions of four wilderness areas containing 145,734 acres, of which 139,708 acres are National Forest System lands.

d. Timber

Timber Sales and Administration Program. In the 5-year period of 1978 through 1982, the Forest has offered for sale an average of 129.9 million board feet (MMBF) of timber, while 76.0 MMBF has actually been sold per year. The average volume cut for the past 5 years is slightly higher at 67 MMBF per year. The volume under contract during this period has averaged 250 MMBF, and ranged from 230 MMBF to 290 MMBF. Lodgepole pine accounts for approximately 20 percent of the volume cut, and it is expected to increase to nearly 40 percent within the next several years. The increased harvest of lodgepole pine is the result of dealing with the mountain pine beetle epidemic on portions of the Forest.

Most sawtimber stands are on steep slopes and are expensive to access and log. Skyline yarding is the major logging method used on the Forest.

Productivity of the Forest's commercial forest lands range from 20 cubic feet per acre per year in warm, dry pine-bunchgrass types to 164 cubic feet per acre per year in warm, moist western hemlock types. Currently, about 20 percent of the Forest is in the 60- to 90-year age class, most of this on the west half of the Forest as a result of vegetative succession following the 1880 and 1910 fires.

The mountain pine beetle is epidemic in many stands, particularly on the Plains Ranger District. Root diseases, primarily Armillaric, are an active pathogen on much of the Forest.

Wood utilization is improving and diligent enforcement of the utilization standards, particularly for recently dead, dead, and unsound sapwood, will increase the volume now being removed from the Forest. Utilization of firewood, which is part of the unregulated component, was estimated at approximately 20 MMBF in fiscal year 1980.

Genetic Tree Improvment Program. The Forest has been involved in the Region's tree improvement program for nearly 10 years. The initial emphasis was the development of super trees through selective breeding. This is still continuing for several species. The other phase of the program is the recognition of the genetic implications of our ongoing management treatments, including reforestation practices, fire and fuel management, insect and disease control, and other cultural practices.

Seed from phenotypically superior trees has been collected and will be evaluated along with seed from other sources in the Northern Rocky Mountain region. Several test plantations have been established at the Savenac Tree Improvement Area located on the Superior District, one plantation on Blue Mountain on the Missoula Ranger District, and additional areas are scheduled to be planted over the next several years. The program direction is also to keep dysgenic practices to an absolute minimum by making careful genetic analysis on a stand-by-stand basis of all treatments involving Forest trees. The initial long-term genetic gains expected from the selective breeding projects is a 15 percent increase in productivity when genetically improved stock is in full use. No adjustments have been made to the Forest yield tables based on this expectation.

e. Water and Soils

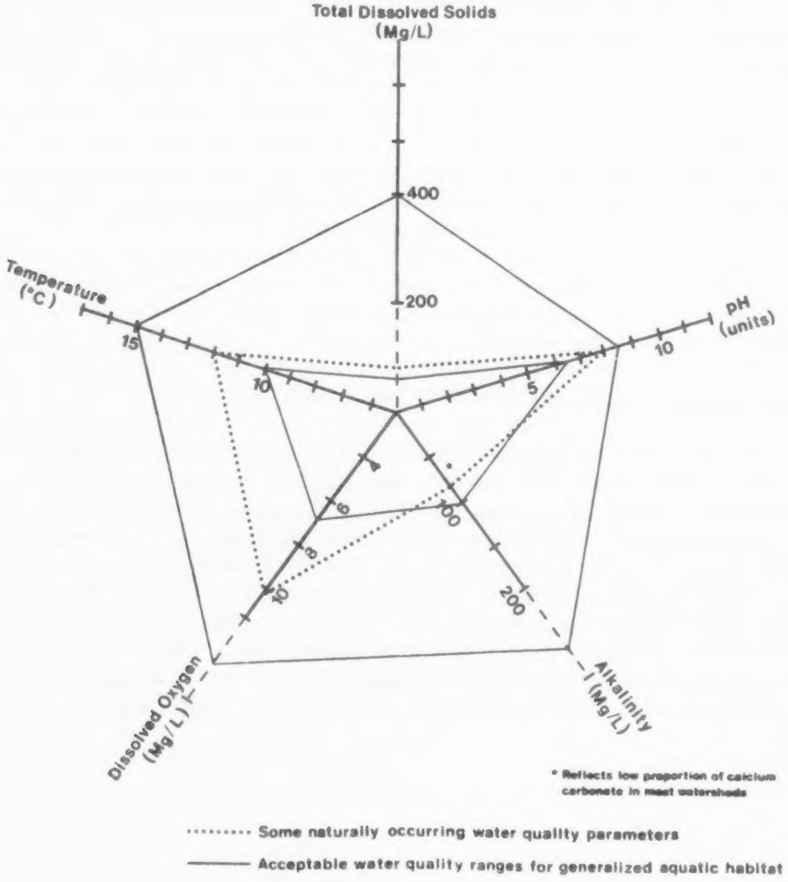
Nearly one-half of the 42 inches of average annual precipitation that falls on Lolo National Forest watersheds is released as streamflow. Three and a half million acre-feet of water per year flow through approximately 10,000 miles of stream channel to ultimatley reach the Clark Fork River. Approximately 3 million acre-feet consistently meet water quality standards. Most drainages within the Forest, except the municipal supply watersheds for Missoula and Thompson Falls, have been classified as B-1 by the Montana State Department of Health and Environmental Sciences (Rattlesnake Creek and Ashley Creek are classified A-closed above the city water system intake).

The chemical water quality of the streams on the Lolo is generally excellent. The University of Oklahoma did a water quality survey of the Lolo in 1972 and described the "average" stream as follows:

Quality Parameter	Mean Value
pH	7.8-8.3 (range)
Temperature	11.9 C. (53.4 F.)
Dissolved Oxygen	10.2 mg/1
Total Dissolved Solids	79.8 mg/1
Alkalinity	67.3 mg/1
Nitrate	0.4 mg/1
Phosphate (Total)	0.126 mg/1
Phosphate (Ortho)	0.048 mg/1
Tannin and Lignin	0.239 mg/1

Some of these parameters are displayed below, along with their acceptable ranges for a broad spectrum aquatic habitat.

Water Quality Polygon



Seasonal monitoring of these parameters since 1972 shows continuing comparable values. Local extremes for summer temperatures have ranged over 20 degrees C. on some streams. Total dissolved solids have been observed over 400 mg/1 on streams in drainages subjected to underground mining and over 200 mg/1 naturally in watersheds with soluable mineralized bedrock such as limestone.

The water quality contaminate most closely associated with land management, is sediment. As compared to chemical parameters, sediment is naturally a highly variable parameter, both among watersheds and within the same watershed, but without quantified information on the flow-related discharge of sediment from the watersheds, the Forest can not estimate the extent management activities are impacting the landscapes. Two of the major landforms on the Lolo are particularly susceptible to water-related erosion and sedimentation. The decomposed granitics along Lolo Creek and the lakebed sediments of Glacial Lake Missoula are naturally high sediment producers.

In some instances, the water resources of the Lolo have been heavily impacted by human historic activities in the area. Roads closely parallel many of the streams on the Forest, frequently crowding or even displacing the stream. Fill material used in construction and surface material loosened during maintenance add to the natural sediment load. In the summer, road dust adds considerably to the very fine portion of sediment carried by the streams. The deep churning of the stream gravels during placer mining has virtually elimated some channel systems' ability to withstand hydraulic forces of high water. Bar formation, channel erosion, scouring, and deposition will alternately afflict the channel, impairing water quality for both instream and offsite uses. Grazing, although not an extensive activity on the Lolo, has a very acute impact on the watershed resource. Even a small number of cattle, if their use is concentrated in stream bottoms, can destroy the stability of a stream channel. Grazing and watershed can be compatible resource uses; however, the conflicts have thus far been generally ignored. The Forest needs to initiate the water resource inventory process to provide information for future planning and to develop best management practices (FSM 2531).

Information supplied by Terry Raettig (Regional Office Economist) gives a value for all water uses in 1970 of $9.30 per acre-foot in the Columbia-Pacific River Basin. That is the lowest value of all river basins in the continental U.S. This value assumes the water is of "good" quality and is reduced as water quality is degraded. In a 1976 study published by the American Water Resources Association, Ming T. Lee and Karl Guntermann studied the total downstream cost of sediment damage. For relatively small sediment yields, the total cost varied from $1.13 to $1.97 per ton per year. Knowing that the average annual water yield of the Lolo is 3.5 million acre-feet per year, the cost of increasing the sediment concentration across the Forest by 1 milligram per liter (part per million or the equivalent concentration of 1 drop of vermouth to 80 fifths of gin) can be computed. Using a mid-range cost of $1.50 per ton, the annual cost would be over $7,000 for each milligram per liter increase in sediment concnetration. Damage to aquatic habitat and fish cannot be expressed monetarily.

The majority of the Forest's soils are residuals developed from the Belt Series rocks. These soils are moderately fertile with the exception of those with an ash cap which enhances their fertility. They are relatively stable except when the ash cap is denuded. Soils developed in glacial materials are common. These soils are moderately fertile and are enhanded if an ash cap is present. The soils contain more than 35 percent coarse fragments and are relatively stable.

The most sensitive soils on the Lolo are those derived from granites, those derived from Lake Missoula sediments, and those derived from shales. Although only about 10 percent of the Forest has what is termed sensitive soils, they are extremely important to recognize.

The granitics require careful attention in management to prevent accelerated erosion. Natural erosion rates are high. There is evidence of dry creep and raveling of road cuts and disturbed slopes, and cuts exceeding about 35 percent will not stabilize. Granitics are not fertile, but fertility is enhanced by the presence of an ash layer. The granitics are localized in the Lolo Hot Springs area (part of the Idaho Batholith) and in the Sapphire Mountains.

Lake Missoula sediments and materials derived from shales are typically fine textured with less than 15 percent coarse fragments. These soils are relatively unstable. The formations are characterized by natural seeps through the strata and subject to mass failure and landslides. Roads developed in these materials require surface stabilization and good drainage to minimize the potential for mass failure or road surface damage.

The occurrence of an ash mantle is important in soil management. The ash layer is found throughout the Forest and is especially thick on the north and east slopes. This layer has high cation exchange and high water holding capacities; it is light in weight and subject to high erosion when exposd by management acticities.

f. Wildlife and Fish

The Forest contains several distinct habitats that are important to differing groups of wildlife and fish species. Even with many overlaps between habitat and the wildlife present, there are specific habitat requirements for most of the groups. The indicator species will be monitored because they are sensitive to management activities or are of special concern, such as the elk or westslope cutthroat trout.

Species Group	Representative Species	Indicator Species
General Forest	Robin, Coyote	
Shrub Users	Yellow Warbler, Mountain Cottontail	
Grass-Forb	Columbian Ground Squirrel, Pheasant	
Riparian Marsh	Common Loon, Pintail	
Riparian Coniderous	Dipper, Ruffed Grouse	
Tree Dependent	Western Tanager, Porcupine	
Mature Old Growth with Limited Management	Pileated Woodpecker, Snowshoe Hare	Pileated Woodpecker
Natural Old Growth	Goshawk, Fisher	Goshawk
Snag Users	Hairy Woodpecker, Osprey	
High Rock	Gray-Crowned Rosy Finch, Pika	
Big Game	Elk, Deer, Moose, Bear	Elk
Threatened and Endangered	Grizzly bear, Peregrine Falcon, Bald Eagle, Gray Wolf	All
Cutthroat Trout	Westslope Cutthroat Trout, Sculpin	Invertebrates (sediment-sensitive)
Other Salmonids	Dolly Varden, Rainbow, Brown Trout	
Nonsalmonids	Whitefish, Squawfish, Suckers	

General Forest. These species have a very wide habitat range, but tend to have higher populations in the early vegetation succession stages. Current populations are at 80 percent of potential.

Shrub and Grass-Forb Users. The species requiring these two habitats are presently at 100 percent of potential given the generally timbered nature of the Forest.

Riparian Marsh. These species are currently at 80 percent of population potential because of water-related activities such as recreation, especially motorized boating, creating a harassment factor and utilizing a portion of the habitat.

Riparian Coniferous. These species are at 80 percent of potential due to past impacts on streamside zones, primarily from roading.

Tree Dependent. The species included in this group are compatible with timber harvest activities except that clearcutting temporarily reduces the amount of habitat available. The existing population level is at 70 percent of potential.

Mature Old Growth with Limited Management. These species are at 70 percent of potential population levels and declining as harvests remove more of the old-growth timber. The current depletion rate of old growth will reduce population levels to 20 to 30 percent of potential, with one or two species extirpated at the Forest level by the year 2030. The species in this group can adapt only to limited management activities, such as light thinnings.

Natural Old Growth. Population levels are 70 percent on the east half and 40 percent on the west half of the Forest, for an average of 55 percent of potential. These species have a very low tolerance to management activities; and at the present rate of old-growth reduction, population levels will drop to 15 to 20 percent of potential and two to three species will be extirpated on the Forest by the year 2030.

Snag Users. These species are at 60 percent of potential population levels. Under current management, this level would drop to 30 percent and level off by the year 2000. There would probably be no loss of species, but this possibility exists.

High Rock. Most species are at the potential population levels, with the notable exception of the mountain goat. This animal is at 75 percent potential on the east half and 20 percent on the west half of the Forest, for an average of 55 percent. Most species will remain at potential levels as little activity will be occurring above the elevation of 6,500 feet.

Big Game. Big game are at 65 percent of the potential population level. Under current management direction, this level would not change appreciably due to the limiting factors of winter range and the inability to increase browse productivity much beyond current levels. The Forest provides habitat for an estimated 10,000 elk.

Threatened and Endangered Species. Grizzly Bear: The past century has seen drastic declines in grizzly bear populations on the Forest, somewhat leveling off in recent decades. However, the Glacier Park/Bob Marshall Wilderness/Mission Mountains population continues to decline about 5 percent per year (Grizzly Recovery Team Advisor, Chris Servheen, personal communication). Factors causing this decline include man-caused mortality (illegal/accidental killing) and habitat modification in the form of increased access, which increases the incidence of human contact and man-caused mortality.

Peregrine Falcon: Past decades saw sharp declines in peregrine falcon populations. Several years ago this trend seemed to reverse and populations are now increasing. Pesticide use, illegal killing, and illegal taking by falconers affected populations; habitat availability has not influenced populations. Peregrine falcon habitat exists on the Forest, but it is currently unoccupied.

Bald Eagle: Bald Eagle populations on the Lolo National Forest appear relatively stable. While a few eagles do nest on the Forest, most of the Forest's eagles merely "winter" here, being part of the Canadian population which is not considered endangered. The Forest provides more bald eagle habitat than is currently occupied. Nonhabitat-related factors such as illegal killing and imprudent use of pesticides appear as principal threats to bald eagle populations.

Gray Wolf: Wolf populations on the Forest have declined during the past century. The current population status and trend of this species are relatively unknown. Population declines are primarily caused by predator control programs, indiscriminate shooting and trapping, and changes in land use patterns. Currently, coyote control programs on adjacent private lands continue to pose a threat to whatever wolf populations exist, mainly through the use of the M-44 "coyote getter."

No aquatic species on the Forest have been identified as threatened or endangered . However, the tailed frog (Ascaphus truei) is recognized as a species of Special Interest or Concern in Montana. Swiftly flowing streams comprise its habitat; the species is relatively common on the Forest, especially at high elevations.

Fish. Game fish now occupy about 95 percent of the suitable habitat within the Forest, and populations are relatively stable. Riparian area activities that increase sediment production has the greatest influence on invertebrate and trout popoulations, which are below full potential numbers. The easy access associated with most of the Forest's better trout streams and the resultant fishing pressure have reduced the numbers of larger-sized fish. Trout populations within the Forest are estimated to be 906,000.

g. Lands

Over 500,000 acres of private and State lands occur within the Forest boundary. During the past 2 decades, the Forest's land management emphasis has responded to a series of social and economic changes including accelerated subdivision, demand for sitings such as transmission and communication facilities, stronger cooperative actions with large landowners, expansion of communities in the Forest area, and developement to provide access to the Forest.

The management of land has become more complex and the restrictions on land use more detailed as demands have increased, conflicts between potential competing uses increased, and the increased managment attention given to public concerns.

Past timber management activities were concentrated on the solid blocks of National Forest land. To meet current harvest goals, large acreages of State and private lands in the checkerboard areas must be crossed and an accelerated rights-of-way acquisition program to gain access has been initiated.

There are 561 active use permits which authorize individual or corporate use of Forest lands for specified purposes. In addition, 783 rights-of-way have been acquired from other landowners to provide access to National Forest System land.

Type of Use	Number of Cases (1980)
Recreation	47
Agriculture	6
Community Uses	2
Industrial Uses	8
Public Information	1
Research, Study, or Training	8
Transportation	271
Utilities and Communications	131
Water Uses	87
TOTAL	561
Right-of-Way Acquisition	783

These permits range in size from less than 1 acre to 500 acres, 100 feet in length to over 20 miles, and improvement value form less than $100 to more than $340,000.

The majority of power lines located on the Forest serve local or nearby needs, and are 100-kV or smaller in size. The 500-kV or 230-kV lines are regional in scope and purpose and transmit power as part of the Pacific Northwest power pool. Local needs are currently well served, and anticipated growth may be accommodated by upgrading existing lines to carry higher voltages. Generally, land occupied by a power line or pipe line is dedicated to that use, and other beneficial uses that accrue along the right-of-way are secondary or accidental, although wildlife habitat and domestic animal range activities may be accommodated in these areas. Exceptions occur with transmission line rights-of-way when the conductors are suspended high enough to allow timber growth beneath them.

To date, the Forest has purchased, through Land and Water Conservation Funds, 2,448 acres. Landline location has resulted in remonumentation of 2,111 corners and 87 miles of boundary line marked to standard. The land use cases authorize use of a total of 10,130 acres and 781 miles of road on National Forest System lands.

The lands withdrawn from mineral entry total 7,519.03 acres, with an additional 495.63 acres proposed by the Forest Service for withdrawal. The proposed and withdrawn lands are now under a review process required by FLPMA.

h. Minerals

The below listed minerals either occur on or are suspected to to lie in the Lolo National Forest. Included in each write-up is a brief description of each mineral and its development potential.

Antimony. Antimony is mined at only two locations in the United States, one in Idaho and the other on the Lolo National Forest. The mine and mill are located in Prospect Creek (T. 21 N., R. 31 W.) and belong to U.S. Antimony Corporation. This underground operation employs 30 people and has a mill capacity of 300 tons of antimony ore per day.

Barite. Currently, there is small scale development of barite prospects in Brewster Creek in the Sapphire Range and along Little Bear Creek in the Ninemile drainage. Occurrences of barite veins have also been reported in the Lower Rattlesnake area and as an accessory mineral to silver and lead mining near Superior.

Copper. While there are no operating copper mines in the Forest, copper has historically been extracted in association with precious metal mining. Copper deposits have recently been discovered in some of the Belt Series rocks to the northwest of the Forest. A copper-molybdenum prospect with the possibility of an underground mine is being investigated at Liver Peak near Thompson Falls.

Dimension Stone. Building stone extracted from the Forest is principally in the Pritchard Formation and is quarried over an area located in T. 18 N., R. 26 W. Extensive developments have occurred in West Fork Fishtrap area in the past (T. 24 N., R. 28 W.).

Geothermal. Several hot springs are located in or near the Forest with the more important being Lolo Hot Springs (T. 12 N., R. 23 W.) and Camus Hot Springs (T. 21 N., R. 24 W.). The water temperatures are not very high and these systems are believed to be limited in extent. There is no current interest expressed for geothermal resources on the Forest.

Gem Stones. Sapphires are found along Rock Creek and some of its tributaries in the Sapphire Range. Semiprecious quartz crystals have also been taken from the vicinity of Lolo Creek.

Gold. Within the Forest, most gold prospecting and mining activity is centered in the Ninemile drainage. Most of the large tributary drainages of the Clark Fork have some placer mining and/or prospecting activity.

Oil and Gas. While no oil or gas has been discovered on the Forest, the search is just starting. There are lease applications covering approximately 900,000 acres of the Forest. Of this total, more than 700,000 acres are currently under lease (July, 1985).

Sand and Gravel. There are many gravel and borrow sites on the Forest which provide fill and road base.

Silver. The Forest contains many old silver mines and prospects. Historic production was associated with veins on lead and zinc along the Osburn Fault system. There is active exploration of the Revett Formation on the west end of the Forest because economic quantities of silver and copper have been found in these rocks to the north on the Kootenai National Forest.

i. Facilities

Currently, there are 5,440 miles of system roads inventoried on or adjacent to the Forest. Of these 5,440 miles, 423 miles are classified as Forest arterials, 2,996 miles are classed as Forest collectors, and 2,021 miles are classed as the local system.

Besides the above-inventoried mileage, there is uninventoried mileage scattered throughout the Forest that was constructed in the past as temporary resource utilization type facilities. This mileage has been estimated at approximately 900 miles. However, experience has shown that only about half of these old roads are being utilized in current timber sale projects and, in turn, placed on the inventoried system. Estimating on this concept adjusts the existing road mileage as follows:

Forest Arterial System	423 miles
Forest Collector System	2,996 miles
Forest Local System (inventoried)	2,021 miles
Forest Local System (estimated)	450 miles
Estimated Total	5,890 miles

Forest Arterial System. Approximately 34 percent of the arterial road mileage is under other agency jurisdiction. Mostly, the "other agencies" are counties.

Approximately 39 percent of the Forest arterial mileage is of double-lane standard (20-foot to 24-foot width). The rest (61 percent) is single-lane to lane-and-a-half standard (12 feet to 18 feet). Most of the system has graveled surfacing with many facilities dust abated with a bituminous base material. Only 6 percent of the arterial mileage is paved and of double-lane standard.

All Forest arterials, to some degree, provide the only access to scattered private lands throughout the Forest. The system is capable of handling the present traffic without much upgrading in standard, but 11 percent is inventoried as primitive and should be upgraded to minimum standards (S.L.) within 10 years. If past traffic increase trending continues, there will be need for upgrading in standards within the next 20 years for safety reasons.

In addition to the above system, there are a number of county routes ("off-system") that link the public highway system to the Forest lands which are not on the Forest Development System, but they function as quasi Forest arterials.

Forest Collector System. The 2,996 miles are almost entirely single-lane standard (14-foot width average) with native-type gravel surface. Approximately 370 miles (13 percent of collector system) are designated as primary collector roads.

Most of the primary collector group is of adequate standard to handle today's traffic and for some time to come. However, 7 percent of mileage is inventoried as primitive in standard, and should be upgraded within 10 years.

Like the arterial system, it is judged that the primary collector system is mostly complete; less than 7 percent of the mileage remains nonexisting and part of that is under construction at this time.

It is in the secondary and minor collector groupings that the additional 856 miles of access roads will be constructed.

Forest Local System. Up until 1970 to 1972, many of the logging roads were built as temporary facilities, were not engineered and not inventoried. It is estimated that 450 miles of these facilities are still usable and will be utilized in the future for timber harvest purposes. It varies from area to area on what percentage of the old roads will be revitalized, but this is not assessed until a sale project is programmed for a specific area.

The standards on the local roads are the minimum that will allow equipment to safely travel and operate and the minimum that will allow the facilities to be maintained on a custodial basis during long periods of closure.

Construction costs are kept to a minimum by sidecast, self-balance excavation methods.

Existing Traffic Use. The Forest arterial and primary collector road systems are the most important part of the Forest Development Road System and are necessary for carrying on Forest management programs. Loss or any lengthy shutdown of these routes would seriuosly curtail continuing activities. Immediate replacement is needed following any kind of loss of roadway. Many of the major arterials provide access to year-round resident occupants on parcels of small private lands.

Approximately 85 percent of the traffic is noncommercial and most of this is for recreation. Seasonal peaks for traffic volume are occurring around August and September, with September the highest. Firewood gathering is the principal reason for this high fall use.

Cooperative Agreements. A number of cooperative agreements with local counties and the State of Montana have been negotiated and are applicable on a continuing basis. These agreements apply to maintenance activities, but reconstruction agreements are negotiated for improvements throughout the system. Generally, these reconstruction projects occur on the arterial system.

Cost Share Agreements. In the last 10 to 15 years, there has been a number of construction-maintenance cost share agreements negotiated with large private companies where intermingled landownership occurs. Primarily, these agreements are with the Burlington Northern Inc. and Champion International Corporation, plus one agreement with Diamond International Corporation. In addition, there are separate agreements with the State of Montana. These agreements involve 288 miles of Forest arterial and primary collector, 720 miles of secondary and minor collector, and 192 miles of local roads.

Maintenance. Local counties and others have jurisdiction and control traffic on 34 percent of the mileage on arterials and 3 percent of the mileage on primary collectors. Likewise, the county usually maintains those portions of the network under their jurisdiction. The year-round residential access needs coincide with the county maintenance portions with few exceptions. One important reason the counties usually maintain the public access segment is to provide for snow removal. The Forest Service does not provide snow removal services except in emergency instances.

For the most part, the maintenance work involved deals with graveled roadways, although some of the routes are dust abated with bituminous base material. This is primarily tied to timber harvest and the dust abated roads are those with heavy timber haul.

Roads in these two classifications do not have closures. They are classed as constant service and, except for emergencies, are not closed to traffic use during normal seasonal access, except possibly for short periods during spring breakup.

The secondary and minor collector roads are under Forest Service jurisdiction and the maintenance responsibility is with the Forest Service, either directly or indirectly through timber purchasers or cooperators. Approximately 850 miles of these routes are closed intermittently to traffic between periods of resource utilization activities and during certain times of the year to protect road grades and reduce big-game animal impacts.

The local system is almost entirely under a custodial maintenance situation except when needed for resource utilization. Most of these routes are closed for more than 1 year. The current Travel Plan reflects approximately 517 miles of inventoried mileage on intermittent closure. Besides this mileage, there is an unknown mileage involved in the uninventoried complex of old temporary roads. Most of these roads are closed to travel.

j. Human and Community Development

The Forest participates in two human resource programs which promote employment and provide skills training, work experience, and education for young and elderly persons in a natural resource environment.

The Youth Conservation Corps (YCC) currently provides 10 young people between the ages of 15 and 18 years with gainful employment during the summer, and provides them with environmental education in conjunction with accomplishing needed conservation work. The Senior Community Sevice Employment Program (SCSEP) provides employment for 12 senior citizens whose incomes are within poverty level guidelines.

k. Protection

Fire. Historically, fire has been a frequent visitor to the Forest. Data compiled for the period 1955 through 1974 indicate an average of 180 fires per year. About two-thirds of these fires are lightning caused and one-third are human caused. The computer program, "RX BURN", indicates that during the same 20-year period, every township on the Forest had experienced at least one human-caused and one lightning-caused fire. The 5-year average (1974 through 1978) for lightning fires is 77 fires per year that burn 25 acres, and 55 fires per year that burn 231 acres for human-caused fires.

The Northern Rocky Mountain States of Idaho and Montana are the scene of one of the most important lightning fire regions in the United States (Barrows et al., 1977). This report states that only Arizona and New Mexico have a higher percentage of lightning fires. The Forest recorded 3,046 lightning fires for the period 1946 through 1973, which amounted to an average of 53 fires per million acres per year protected (ibid.). Of these fires, only 1.5 percent grew to a size larger than 10 acres. Average size per lightning fire on the Forest during the 1946 through 1973 period was slightly over 2 acres. Lightning ignitions have a higher occurrence rate in some forest cover types than they do in others. More fires are ignited in the ponderosa pine type (24 ignitions per million acres per year). These fires also tend to be larger than fires in other cover types.

Approximate cost of the current presuppression program on the Forest is 1 million dollars for prevention, detection, initial attack, and air operations. The current natural fuel reduction program costs about $250,000 annually.

Three categories of fire management areas have been established on the Lolo National Forest. The first is the wildland/homes fire management area where life and property values are so high that immediate control (1 hour or less) is necessary. In the modified dispatch fire management areas, fires will be controlled; but opportunities to modify dispatch procedures under conditions of lower fire danger should improve the cost effectiveness of the program.

In the observation fire management areas, fire will be allowed to assume a more natural role. Fires will be permitted to burn under predetermined prescriptions during the regular fire season and/or post-season. These management areas are generally characterized by minimal fuel hazards and/or low fire frequency.

Insects and Diseases. Forest-wide, the most serious insect pest continues to be the mountain pine beetle. Scattered infestations can be found in both lodgepole and ponderosa pine types on most Districts. The most serious outbreak remains on the Plains Ranger District throughout much of the Thompson River drainage. Of 32,638 acres of infested lodgepole pine observed on the Forest in 1982, 16,000 acres of that were on the Plains Ranger District. 1/

Infested acres on the Plains District increased from 5,500 in 1979 to more than 16,000 in 1982. These figures do not include an additional 14,500 acres of infested lodgepole and ponderosa pine in the Thompson River drainage on State and private land (including Thompson River State Forest). These infested acres are comprised largely of three major infestations: the upper Fishtrap drainage, Thompson River, and the McGregor-Thompson infestation on the northern portion of the Murr-Baldy Planning Unit.

Infestation on the upper Fishtrap drainage covers approximately 9,900 acres (including Federal, State, and private land). Most Federal land management activity to reduce losses has been concentrated in this area where 16.9 MMBF of infested or high-hazard green lodgepole has been removed from Fishtrap and Lazier Creeks. Most of the severe tree-killing in the Thompson River drainage occurs north of the Little Thompson River. Throughout this area, an estimated 20 MMBF of infested or high-risk lodgepole has been harvested--primarily from private land. Approximately 3,600 acres are infested in the northern portion of the Murr-Baldy Planning Unit. Most mortality is occurring on the Murr Creek and North Fork Murr Creek drainages. Extensive management is occurring in the area, most private lands are being harvested, and several large timber sales have occurred or are scheduled for the National Forest System lands.

Notable increases in beetle intensity are still being observed throughout the Thompson River drainage. Where harvesting has been concentrated, beetle popoulations are beginning to respond to a depleted food supply. Other high-hazard and unroaded stands are experiencing build-ups in beetle-caused mortality. Data from 150 variable radius plots scattered throughout the area indicated an average of 27 trees per acre were killed in 1980 and up to 53 trees per acre in 1982. This represents nearly a 6:1 increase from 1979. The infestation is expected to continue its spread until susceptible host trees are killed or removed.

Present management plans on the Plains District include increasing efforts to hazard rate remaining lodgepole stands and accelerated harvesting to remove the most susceptible stands. Hazard-rating is completed on approximately 50,000 acres. In areas surveyed 12,000 acres were rated high-hazard, 12,000 acres moderate-hazard, and 26,000 acres low-hazard.

1/ McGregor, Oakes, Meyer, 1982. Status of Mountain Pine Beetle, Northern Region. Report No. 83-16, June 1983.

Past logging practices have included clearcutting (up to 200 acres) and selectively removing all lodgepole from infested or susceptible stands. Future sales will emphasize fewer large clearcuts, but that option may be warranted in certain situations. Harvest schedules include 2 MMBF in fiscal year 1981, 7 MMBF in fiscal year 1982, 8 MMBF in fiscal year 1983, 16.5 MMBF in fiscal year 1984, and 18 MMBF in fiscal year 1985. These figures represent primarily lodgepole pine harvests--either infested or high-hazard green. Through 1982, management efforts will remain concentrated in those areas previously roaded. One sale has been made in Murr-Baldy, on the North Fork Murr Creek drainage and is currently being harvested. District personnel anticipate by 1984 more roadless acres will gradually become roaded and subsequently lodgepole sales should increase.

Widely scattered ponderosa and lodgepole mortality was observed on both the Missoula and Ninemile Ranger Districts. Some 50- to 100-tree groups of beetle-killed pines and extensive stands of uninfested, yet susceptible trees, indicate the potential for increased mortality is high. The upper Ninemile drainage on the Ninemile District has a small epidemic outbreak of about 2,000 acres. This area is being prepared for sale and pheromone trapping is being conducted to hold population in check until harvested. Beetle populations on the Seeley Lake Ranger District appear to be static, but much high-hazard lodgepole pine remains on the District.

Hazard rating surveys are being completed on 20 to 30 thousand acres per year on the Forest to rate lodgepole pine stands susceptibility to mountain pine beetle attack.

In recent years, moderately severe infestations of western spruce budworm have occurred in Douglas-fir stands throughout the Forest. During 1980, climatic factors apparently reduced budworm populations Forest-wide. Budworm activity may increase in the near future in response to drier conditions now prevalent throughout this Region. If expectations are realized, increased defoliation along with subsequent growth loss and topkill, and damaged cone crops will result.
Dwarf mistletoes infest 17 percent of lodgepole pine stands. They are causing a Forest-wide growth reduction of slightly more than 3 million cubic feet per year. Damage is most severe in unmanaged old growth Douglas-fir and western larch stands and in young stands established under an infected overstory. Losses can be reduced through silvicultural treatments.

Root disease centers occupy more than 1 percent of the commercial forest land (20,000 acres) on the Forest. Many stands also contain extensive single tree and small group mortality caused by root disease/bark beetle complexes. Douglas-fir and grand fir are most susceptible, but all conifers are affected by one or more root pathogens. The problem can persist from one rotation to the next.

3. Resource Potential

a. Range

Maximum Production Potential. The maximum production potential for range is expressed in livestock grazing use, or animal unit months (AUM's), as a result of increasing grass/forb production.

Table VI.9: Grazing Use (Livestock), Maximum Production Potential

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Average Annual AUM's	16,300	20,000	22,900	25,400	25,900

Proposed Forest Plan. The supply potential in the Proposed Forest Plan starts at a level equal to the RPA target during the first decade, but maintains a lower level of supply potential the remaining 4 decades.

Table VI.10: Grazing Use (Livestock), Proposed Forest Plan

	1981	1982-1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Average Annual (M AUM)	14.0	14.0	14.0	14.3	14.3	14.3	14.3

In this area of western Montana, there is limited opportunity for increasing the total size of the herd on non-Federal lands because of topography, so demand for large increases in Forest grazing is limited even at the present 1981 permit fee ($2.31/AM), some available allotments are in nonuse. In the event that the supply of grazing should exceed the amount expected to be utilized, only utilized AUM's will be valued at the estimated worth of $8.61/AUM. If the amount of livestock grazing utilized is significantly different from the RPA estimates, the level of grazing on the Forest is still low enough that the economic consequences will be minor. RPA estimates of range utilization are the upper limits valued.

b. Recreation

Maximum Production Potential. The maximum production potential represents the physical capacity of the land and developed facility base. The potential use of developed sites in the public sector and dispersed recreation does not vary by time period because the full allocation of suitable lands to recreation use is made at the outset and cannot be increased. Developed sites in the private sector could increase, especially for skiing if existing sites expand or potential development on Lolo Peak is realized.

Table VI.11: Annual Recreation, Maximum Production Potential (MRVD's)

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Developed Recreation	1,062	1,062	1,062	1,062	1,062
Dispersed Recreation	4,675	4,675	4,675	4,675	4,675

Wilderness use potential is included under dispersed recreation and is estimated to average 312,000 RVD's annually.

Proposed Forest Plan. The present supply of recreation opportunities far exceeds all expected utilization according to RPA projections, with the exception of specific developed sites during high use periods. The supply potential is the RPA target as identified in the demand section.

c. Wilderness

Maximum Production Potential. The maximum potential for wilderness on the Lolo is approximately 44 percent of the Forest or 915,898 acres. The use potential of these areas is included with dispersed recreation and comprises a portion of Types I and II (primitive) recreation use. The carrying capacity, based on Northern Region guidelines, is estimated to be 312,230 recreation visitor days.

Proposed Forest Plan. The proposed plan acknowledges 139,708 acres of classified wilderness and identifies 223,600 acres suitable for wilderness recommendation on National Forest System lands. Estimated use of the Scapegoat, Selway-Bitterroot, and Welcome Creek Wilderness areas was 18,800 visitor days in fiscal year 1980. The wilderness portion of the Rattlesnake was not classified at that time, and separate use figures are not determined for the three proposed wildernes areas. The total carrying capacity for classified wilderness and those acres suitable for wilderness recommendation is estimated to be 188,000 recreation visitor days.

d. Timber

Maximum Production Potential. The maximum production potential recognizes the need to protect soil and water resources, that Habitat Groups 0 and 6 are unsuitable for timber management, and that areas are unsuitable for timber management if they cannot be regenerated within 5 years. Maximum timber production potential is portrayed by Table VI.12.

Table VI.12: Nondeclining Even Flow Timber Volume, Maximum Production Potential

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Average Annual MMBF	219	219	219	219	219

At the time when all timber stands scheduled for maximum production reach their potential, the sustained yield would be 244.3 MMBF. This would occur during the decade 2090 through 2100.

Proposed Forest Plan. The proposed plan recognizes the need to protect soil and water resources and that provisions must be made to gain other multile use outputs and uses. Within reasonable output levels, there will be sufficient local demand for Lolo Forest timber. It appears that the supply side presents the more likely constraint for timber analysis. Table VI.13 presents the programmed sales offered, which includes both regulated and unregulated harvest schedules.

Table VI.13: Programmed Sales Offered, Proposed Forest Plan

	1986-1988	1989-1990	1991-2000	2001-2010	2011-2020	2021-2030
Average Annual MBF (Regulated Harvest)	80	100	107	133	133	133

The long-term sustained yield is 178 million board feet.

e. Water and Soils

Maximum Production Potential. The maximum amount of water that can be produced would result from the complete removal of timber. This is neither feasible nor desirable as it would result in severe damage to the soil resource and the stream channels.

The maximum increase over normal yield that considers soil and channel protection is estimated to be 10 percent on streams with a "good" or better channel stability rating, and 8 percent for streams with "fair" stability rating. Local conditions such as debris accumulation, roading, mining, and geologic factors such as faults or ancient lake deposits are degrading the stability of some reaches of some streams; but, in general, streams within the Forest rate in the "fair to good" range.

The 50-year average annual maximum water production potential for the Forest is 3,698,235 acre-feet, and is calculated from the maximum timber harvest potential. There is a certainty that damage to stream channels, erosion of top soil, and excessive yields of sediment would result with this alternative.

Proposed Forest Plan. The supply potential under the Proposed Plan, which provides for maintaining stream channel protection, allows an average annual 8 percent increase during the first decade. This amounts to a surface flow from the Forest of approximately 3,593,600 acre-feet per year. The maximum yield that occurs is in the fifth decade (3,662,800 acre-feet) and would probably result in stream channel deterioration, but the reevaluations and monitoring in the future decades can correct for this situation.

f. Wildlife

Maximum Production Potential. The maximum production potential for wildlife habitat is measured in terms of big-game animal unit months (AUM's), Table VI.14, as a result of increasing forage production.

It is not possible to maximize habitat for all of the species groups, as management activities that would benefit one group would be detrimental to others.

Table VI.14: Big-Game Forage, Maximum Production Potential

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Annual Winter Forage (M AUM's)	43.0	46.5	47.9	47.8	48.8

In order to attain the maximum production potential, type conversions (timber to browse) and deregulation of timber harvests on approximately 163,266 acres of commercial forest land would be necessary.

Proposed Forest Plan. The supply potential provides for a net gain in elk habitat producitivity from the existing situation. Elk is the indicator species for big-game, and other game animals will benefit from habitat management in the proposed plan. The allocation of old-growth habitat will provide for viable populations of dependent species in most major drainages. The snag policy will ensure adequate habitat for snag-dependent species. Other nongame species populations and diversity are not adversely affected. Grizzly bear habitat management will provide for protection, habitat enhancement, and help provide for recovery of the species.

g. Lands

At this time there are no planning decisions in the proposed Forest Plan that would preclude the availability of corridor segments ("windows") identified in the 1977 draft long range corridor study.

h. Minerals

While the quantity of minerals currently mined out of the Forest makes up a very small percentage of the national output, there is some potential for significant future production. Several major mining firms are actively exploring the west end of the Plains and Superior Ranger Districts for a continuation of Revett Formation-type mineralization (stratabound silver/copper). Rocks of this geologic unit crop out in many places in Sanders and Mineral Counties. Exploration drilling around Liver Peak just east of Thompson Falls has confirmed the existence of a concealed copper/molybdenum porphyry deposit. Should the market prices for these two minerals rebound up to historic levels, this property could become economic to develop. Although it is not likely that the volume of gold mined on the Lolo will ever constitute a major portion of the Montana total, there will always be some production as a result of the large number of miners willing to expend their labor and means in hopes of finding a bonanza deposit.

i. Facilities

The amount of additional development that will occur in the future is more closely associated with timber than with any other resource or use. The ultimate road system needed to further implement the proposed plan totals approximately 11,109 miles.

j. Human Community Development

The current national direction is to deemphasize the Human Resource Programs. The elimination of the YACC program and the extreme reduction of the YCC program will not allow the Forest to meet the RPA objectives through 1985.

4. Use and Development Opportunities

a. Range

The only practical way to increase forage on the Forest is to remove timber on the transitory range, allowing the grass/forb production to increase. This transitory range will provide livestock forage for about 10 years before the forage production declines due to regrowth of the timber. Riparian zones require structural and nonstructural stock controls to alleviate streambank damage and stream sedimentation. Wildlife needs will decrease the amount of forage availabel to livestock.

b. Recreation

The Proposed Plan allocates lands to roadless area management and unroaded big-game winter range in order to provide for semi-primitive, nonmotorized dispersed recreation (Type II) needs. These same allocations provide (in part) for the needs of old-growth habitat wildlife and snag-dependent species and maintenance of long-term animal species diversity. Road development associated with the timber sales program will provide opportunities for motorized dispersed recreation (Types III an IV) and provide for a better dispersion of recreationists. A more extensive trail maintenance program will be required to provide for the nonmotorized receationist. Any potential ski area development on Lolo Peak will need to be coordinated with the proposed research natural area.

c. Wilderness

Adequate techniques exist to resolve management concerns and to provide opportunities for users in wilderness areas on the Forest in excess of expected utilization through the year 2030. Actual accomplishment will be limited only by the Forest's ability to provide adequate funds for administration, maintenance, and cleanup. User capacity is reduced as trails and bridges are closed for lack of maintenance and the effort is reduced to limit or adequately distribute visitors.

d. Timber

Small-sized timber on steep slopes, with high access costs, requires a large investment in access development. Appropriated funds are needed to supplement road construction in many of these areas. This same program is needed to provide for salvage of beetle-killed lodgepole pine prior to timber deterioration. The checkerboard landownership pattern complicates and increases the expense of accessing and managing timber stands on the Forest. Harvesting of firewood will increase as fossil fuel costs for home heating climb. Timber harvest is an extremely important tool to gain desired levels of big game and livestock forage production and to improve cover/forage ratios for big game. These considerations, along with harvest constraints to provide for old-growth dependent wildlife species and to achieve visual quality objectives will reduce the regulated timber harvest volumes from optimal timber production volumes.

e. Water and Soils

Water yield increase is dependent on the vegetative manipulation that is carried out. This may occur through timber harvests, burning to rejuvenate big-game forage production, and through the land area dedicated to roads. Tree opening size, dispersal, and duration have the largest influence on increasing water yields. The amount of denuded soil, its derivation, and its proximity to streams influence the potential sediment production that is introduced into the stream course. Other activities that may influence water quality are livestock grazing and placer mining in the riparian zone.

With the exception of possible conflicts in municipal watersheds, changes in water yield from Forest activities occur primarily during periods of excess supply and are not of importance in demand-supply context.

f. Wildlife and Fish

Timber harvest and prescribed fire are the principal means to improve big-game habitat. They are used to gain the desired cover/forage ratios and to provide for increased forage production. In order to provide for wildlife, livestock use will not be permitted to increase in Management Areas 18, 22, and 23 (and may even be reduced in some instances) unless there is forage production in excess of wildlife needs. Short-term visual impacts may result from the need to burn low elevation winter range, and these areas may be seen in the foreground or middleground.

The many-aged seral vegetation communities resulting from activities associated with timber management will provide habitat for many nongame wildlife species. In addition to land allocations made to provide for the needs of old-growth dependent species, wilderness, roadless, and areas unsuitable for timber management will provide habitat for these species. Drainages with sufficient amounts of wilderness do not include additional allocations of old-growth habitat.

The wilderness, roadless areas, and noncommercial forest lands located adjacent to lands intensively managed for the benefit of the grizzly bear provide additional, undisturbed area for the bear. Habitat effectiveness, for most wildlife species, requires low disturbance levels, and to attain a high effectiveness some roads need to be closed yearlong or seasonally.

The activities that occur in the riparian area have the most influence on fish habitat and population potentials. Although riparian areas comprise a small percentage of the Forest, they receive a disproportionate share of the human use. Road development, developed recreation sites, grazing, and timber harvests all have effects on the riparian area, hence the effects on fish habitat.

g. Lands

Opportunities exist through land exchange, purchase, or donation to resolve management- and boundary-related problems. Large acreages of State and private lands and their checkerboard distribution in some areas require an accelerated rights-of-way acquisition program to facilitate Forest management activities. The capability of the Forest to accommodate new energy transmission facilities can be met by upgrading or replacing existing structures to carry larger loads, and by identifying potential corridors where resource, social, and environmental impacts will be minimized. Most environmental standards will be met except for short-term air pollutionn (dust) and sedimentation of water during construction. New corridor location is not orientated toward emphasizing cost-effectiveness or self-sufficiency; gains made in meeting these objectives would be added benefits.

The withdrawal of lands from mineral entry and leasing preclude the use of those lands for mineral prospecting, exploration, and development.

h. Minerals

Mineral activities occur to some extent on every Ranger District. Some 30 percent of the Forest is currently under lease for oil and gas with applications pending on another 7 percent. Thousands of unpatented mining claims have been staked on the Lolo; most lie on the west-end

Ranger Districts and result in small scale extraction of gold, barite, and antimony.

Development opportunities are somewhat limited by existing and proposed mineral withdrawals. The Forest has about 160,000 acres of designated wilderness lands under withdrawal for mineral entry and leasing. Another 215,000 acres are proposed for withdrawal as a result of wilderness recommendations originating from the RARE II process. If these lands do become part of the wilderness system, approximately 18 percent of the Lolo would be unavailable for mineral exploration and development.

In recent years, the Forest has been considered as having potential for the production of oil and gas. Generally, the northern and eastern portions are believed to hold the best possibilities. Some geophysical surveys have been conducted in these areas. Mining companies are combing the Lolo looking for stratabound silver-copper deposits similar to those found on the Kootenai National Forest at Spar Lake and Chicago Peak. Exploration interest remains high for deposits of gold, both lodes and placer. Several companies feel there is a good possibility for the occurrence of ore grade lead-zinc-silver-copper mineralization along the Osburn fault zone extending into the Lolo from the Kellogg-Wallace mining district.

i. Facilities

Although road construction is principally financed to benefit the timber management program, all other resource uses and management depend on these roads for access.

C. Alternatives and Benchmarks

This section presents the development, description, and comparison of alternative ways of managing the Forest's land and resources. The development process involves an analysis of the management situation which includes identification of ranges of goods, services, and uses that are feasible; projections of demand; potential to resolve issues and concerns; the technical, economic, and environmental feasibility of providing the levels of goods, services, and uses resulting from assigned objectives; and the need to establish or change management direction. Basically, this step identifies the capabilities of the Forest. The range of alternatives considered in detail, as well as those eliminated from detailed study were defined by completing the analysis of the management situation.

The alternative descriptions identify the objectives of each altenative, where the alternative fits in the range, and how it responds to issues. The resource, economic, social, and assignment results are also shown. Alternatives are compared by resource outputs, social and economic effects, response to major issues, and nonpriced benefits.

Maps are provided which visually display the location of land assignment for each alternative.

1. Alternative Development

Overview

Forest planning began by identifying public issues and management concerns. Once the issues were finalized, information was needed to determine the Forest's capability to respond to each issue in the analysis of the management situation for the Forest. Base resource data, economic information, and environmental/legal constraints were examined. Benchmarks were developed and analyzed to measure resource and economic interrelationships and output ranges for alternative development.

Alternatives were developed to respond to issues, present net value (PNV), and net public benefits (NPB). A single, numeric NPB value was not calculated since monetary values associated with some resources such as timber cannot be added to the qualitative value of nonpriced benefits such as a scenic view. An understanding of the various types of values and interrelationships associated with Forest outputs aids decision makers in the selection of an alternative that maximizes net public benefits.

The alternative development process used here is outlined in 36 CFR 219.12. These regulations include the following goals for alternative formulation:

- Provide a basis for identifying the alternative that maximizes net public benefits.

- Alternatives shall be distributed between the minimum and maximum resource potential and reflect a range of environmental resource uses and expenditure levels.

- Alteratives shall be formulated to facilitate analysis of opportunity costs and tradeoffs.

- Alternatives shall be formulated to evaluate effects on present net value, benefits, and costs.

- Alternatives shall provide different ways to respond to major public issues.

In the Forest planning process, an alternative is a given combination of resource uses and management prescriptions that achieves a certain management emphasis. Under the NFMA Regulations, development of alternatives, including the proposed action, is based on a set of "building blocks". These are the management prescriptions, each of which is a strategy for managing the resources of an area of land. Each of the management prescriptions used in the Forest planning process is made up of compatible management practices, which are specific resource actions or treatments that accomplish a management goal.

The alternatives considered represent different combinations of the management prescriptions in different locations to varying levels of output, goods, and services. The set of management prescriptions is the same for all alternatives; the mix of acres related to each prescription is different by alternative.

2. Benchmarks

The analysis of the management situation determined resource supply potentials by establishing minimum and maximum production levels called benchmarks. A level was also established from which the costs and effects of applying regulations and policy constraints were measured. Production capabilities were determined for single resources and for a set of multiple resource outputs that maximized present net value. This analysis established the benchmark levels required by NFMA Regulation 219.12e.

a. Benchmark Descriptions

The minimum level and maximum supply potentials that define the limits of supply are not alternatives. The minimum level potential is not responsive to public issues and management concerns and does not provide for multiple use and sustained yield of the several products and services that are available from the National Forest as directed in the Multiple Use-Sustained Yield Act of 1960. The maximum supply potentials are not alternatives because the maximization of one resource is at the expense of other resources and seriously reduces the total values that can be achieved from the Forest. Benchmarks are compared to the production potential that would occur if current management direction was continued.

b. Analysis of Benchmarks

(1) Maximize Present Net Value (Benchmark h)

This benchmark establishes the mix of resource uses and schedule of outputs and costs that maximized present net value using market and nonmarket assigned values. Most constraints are removed from the model, even flow of timber harvest, and scheduling of harvests to benefit other resource values such as elk forage production. The only constraints applied are those that will maintain the productivity of the land and maintain an ending timber inventory to assure long-term productivity and provide habitat requirements for threatened and endangered species. The existing laws and regulations pertaining to wilderness and areas recommended for wilderness are also recognized. The objective function is to maximize the present net value.

Table VI.15: Average Annual Resource Production Under the Maximum Present Net Worth Level

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Potential Livestock Use (MAUM)	15.9	15.9	15.9	15.9	15.9
Potential Developed Recreation(MRVD)	405	405	405	405	405
Potential Dispersed Recreation (MRVD)	1635	1635	1635	1635	1635
Timber Sales Offered (MMBF)	123	154	193	188	234
Water Yield Increase (M ac-ft)	69.3	96.9	120.4	144.7	188.4
Total Water Yield (MM ac-ft)	3.63	3.69	3.71	3.73	3.73
Water That Meets Quality Goals (MM ac-ft)	3.21	3.23	3.24	3.26	3.28
Big-Game Winter Forage (MAUM)	27.4	27.5	51.7	69.6	98.1
Elk Summer Quality Index (% of Existing Situation)	115	115	115	115	115
Elk Population Potential (Number)	8.2	8.2	8.2	8.2	8.2

(2) Maximize Timber/Range (Benchmark i)

The maximum legal capability of the Forest to produce timber was determined by this benchmark. The maximum production potential recognizes the need to protect soil and water resources and that lands producing less than 20 cubic feet per acre per year are not suitable for timber management.

Table VI.16: Programmed Sales Offerings, Nondeclining Even Flow, Maximum Potential and Continuation of Current Direction (annual MBF)

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Maximum Potential	219	219	219	219	219
Current Direction	118	140	140	140	140

The maximum potential assumes that wilderness will be declassified and that proposed wilderness will not be classified. The contribution of these lands to the programmed sales offered in the above table is 35.9 million board feet annually. Production values for the other resources are displayed in Table VI.23.

(3) Maximize Wildlife Habitat Potential (Benchmark j)

The purpose of this benchmark was to analyze the potential for big game habitat based on the availability of forage on winter range. This benchmark established the maximum potential for big game based on forage production. The maximum production potential for wildlife habitat improvement is measured in terms of big-game animal unit months (AUM's) of forage production on winter range and by the summer range quality index (Table 17).

It is not possible to maximize habitat for all of the species groups concurrently, as management activities that would benefit one group would be detrimental to others.

Table VI.17: Big-Game Habitat, Maximum Potential and Continuation of Current Direction (average annual)

	1981-1990	1991-2000	2001-2010	2001-2020	2021-2030
Winter Forage, M AUM's					
Maximum	43.0	46.5	47.9	47.8	48.8
Current	20.8	21.2	23.9	24.9	23.6

Table VI.18: Average Annual Resource Production Under Maximization of Winter Forage by Time Period

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Potential Livestock Use (M AUM)	14.3	17.5	19.7	20.3	21.1
Potential Developed Recreation (MRVD)	304	304	304	304	304
Potential Dispersed Recreation (MRVD)	1437	1739	1906	2063	2216
Timber Sales Offered (MMBF)	159.4	159.4	159.4	159.4	159.4
Water Yield Increase (M ac-ft)	86.7	126.8	154.5	181.1	182.5
Total Water Yield (MM ac-ft)	3.61	3.65	3.68	3.71	3.71
Water That Meets Quality Goals (MM ac-ft)	3.19	3.22	3.24	3.27	3.27
Big-Game Winter Forage (MAUM)	43.0	46.5	47.9	47.8	48.8
Elk Summer Range Quality Index (% of Existing Situation)	131	131	131	131	131
Elk Population Potential (Number)	12,200	13,100	13,100	13,100	13,100
Fish Population Potential (M Number)	665	663	659	655	652
Roads Needed for Management					
Collector (Miles)	2800 will increase over time to				3110
Local (Miles)	1800 will increase over time to				8728
Visual Quality (% of Sensitive Areas Maintained)	46	46	46	46	46
Wilderness (M acres)	343.7	343.7	343.7	343.7	343.7
Roadless Area Management (M acres)	343.7	343.7	343.7	343.7	343.7
Total Budget (MM 1978 dollars)	22.11	22.08	19.44	18.10	20.59

Present Net Value = $223,406,000 (1978 dollars)

In order to attain the maximum production potential, type conversions (timber to browse) and deregulation of timber harvests on approximately 163,266 acres of commercial forest land would be necessary.

Under the maximum potential, the wildlife species requiring old-growth timber and snags would experience a sharp decline in population and one to three species may be eliminated from the Forest. The riparian marsh species would also decline but to a lesser degree. Populations of other species would remain stable or increase.

(4) Maximize Wilderness (Benchmark k)

Wilderness allocation was maximized in order to explore the foregone monetary values and resource outputs by comparison with Benchmark h. This benchmark was used to develop a wide range of wilderness recommendations from no new wilderness to allocating all or nearly all inventoried roadless area to wilderness. The maximum wilderness potential represents an attempt to preserve the natural environment to the maximum extent possible on the Forest. Timber management and development activities were confined to the most productive sites presently developed and those not having soils, wildlife, or visual constraints. Maximizing the wilderness acreage would place about 30 percent of the Forest "off limits" to mineral exploration and development. These areas contain 32 percent of the inventoried high to very high mineral potential. The maximum potential for wilderness on the Lolo is approximately 30 percent of the Forest, or 624,460 acres. An additional 111,000 acres of scattered small parcels could be maintained as roadless. The combined acreage (735,460 acres) would provide for a carrying capacity of approximately 2 million primitive and semi-primitive recreation visitor days per year.

(5) Minimum Level (Benchmark l)

This benchmark defined the minimum costs of public landownership and the resource outputs which are incidental to Forest management. Benchmark l served as a minimum reference point to develop and/or test alternative activities, outputs, and costs which result from Forest Service activities. The purpose of the Minimum Supply Potential is to show the unavoidable costs and benefits that occur as long as the Forest is in public ownership. It reflects the cost of managing just the land resources and the decision to incur these costs remains with the decision to retain the land in Federal ownership and not within the authority of the Forest Service planning process.

Management provides only those benefits that are necessary to protect the life, health, and safety of the incidental user; preventing environmental damage to National Forest and adjoining or downstream lands due to causes in excess of natural successional processes; and administering unavoidable special uses and leases.

The outputs derived under this potential reflect management practices and associated costs and outputs that protect soil and water resources and prevent permanent impairment of the productivity of the land. The minimum levels, or some portion of them, are included as the base level in every alternative. Examples of management activities include fire suppression, insect and disease control, law enforcement, search and rescue, special-use management, and a decreasing level of road and trail maintenance over time. Incidental outputs include dispersed recreation use, water yield, and natural wildlife habitat.

Table VI.19: Average Annual Resource Production Under the Minimum Level by Time Period

	1982-1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Livestock Forage (M AUM)	12.8	0.5	0.5	0.5	0.5	0.5
Dispersed Recreation (MRVD)	1050	945	803	682	682	682
Developed Recreation (MRVD)	145	0	0	0	0	0
Timber Sales Offered (MMBF)	0	0	0	0	0	0
Water Yield (MM ac-ft)	3.4	3.4	3.4	3.4	3.4	3.4
Elk Net Habitat Productivity (% of Existing)	107	106	100	91	76	60
Elk Population Potential (M animals)	9.9	9.7	9.3	8.4	7.0	5.6
Aquatic Habitat/Fisheries						
Roads in Riparian (useable miles)	1435	1350	820	530	280	280
Change in Amount of Riparian Roaded from Existing (%)	+5	+2	-38	-60	-79	-79
Sediment Production (M tons)	27	24	22	47	27	22
Fish Population Potential (M fish ^ 6")	856	856	856	856	856	856
Prescribed Burning (M ac)	0	0	0	0	0	0
Access						
Roads Needed for Management						
Collector (Miles)	2540	0	0	0	0	0
Local (Miles)	1680	0	0	0	0	0
Roads Open for Use (Miles)	1750	1650	1000	650	650	650
Trails Open for Use (Miles)	1500	1000	500	300	300	300
Roadless Management Areas (M ac)	375	375	375	375	375	375
Wilderness Management Areas (M ac)	345	345	345	345	345	345
Visual Quality (% of existing sensitive areas maintained	100	100	100	100	100	100
Total Budget (MM-1978 dollars)	3.2	2.6	2.6	2.6	2.6	2.6

Present Net Worth = $86,179,660

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(6) Constrained Budget/Current Action (Benchmark m)

Benchmark m defined the current level of goods and services with a constrained budget. It results in the most likely amount of goods and services expected in the future with current management direction with budget restrictions.

Table VI.20: Average Annual Resource Production Under the Constrained Budget/Current Direction

	1982-1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Livestock Forage (M AUM)	13.8	13.8	13.8	13.8	13.8	13.8
Dispersed Recreation (MRVD)	1181	1181	1181	1181	1181	1181
Developed Recreation (MRVD)	365	365	365	365	365	365
Timber Sales Offered (MMBF)	118	118	118	118	118	118
Water Yield (MM ac-ft)	3.2	3.2	3.2	3.2	3.2	3.2
Elk Net Habitat Productivity (% of Existing)	100	100	100	100	100	100
Elk Population Potential (M animals)	9.3	9.3	9.3	9.3	9.3	9.3
Aquatic Habitat/Fisheries						
Roads in Riparian (useable miles)	997	997	997	997	997	997
Change in Amount of Riparian Roaded from Existing (%)	+13	+13	+13	+13	+13	+13
Fish Population Potential (M fish > 6")	905	904	903	901	900	899
Prescribed Burning (M ac)	0	0	0	0	0	0
Access						
Roads Needed for Management						
Collector (Miles)	3323	3323	3323	3323	3323	3323
Local (Miles)	9852	9852	9852	9852	9852	9852
Roads Open for Use (Miles)	2208	2208	2208	2208	2208	2208
Trails Open for Use (Miles)	1825	1825	1825	1825	1825	1825
Roadless Management Areas (M ac)	179	179	179	179	179	179
Wilderness Management Areas (M ac)	325	325	325	325	325	325
Visual Quality (% of existing sensitive areas maintained	100	100	100	100	100	100
Total Budget (MM-1978 dollars)	11.3	11.3	11.3	11.3	11.3	11.3

Present Net Worth = $170,000,000

The following resources were also analyzed:

(a) Recreation

The maximum production potential is expressed in thousands of recreation visitor days (MRVD's) and represents the physical capacity of the land and developed facility base. The maximum potential does not vary by time period because the full allocation of suitable lands to recreation use is made at the outset and cannot be increased.

Table VI.21: Annual Recreation Use: Maximum Production Potential and Continuation of Current Direction (MRVD's)

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Developed Recreation Maximum Potential	1062	1062	1062	1062	1062
Current Direction	365	392	375	386	405
Dispersed Recreation Maximum	4675	4675	4675	4675	4675
Current Direction	1181	1283	1392	1478	1536

In the dispersed recreation category motorized and nonmotorized recreation use cannot be maximized concurrently. For allocation purposes, the recreation groups are mutually exclusive and the same acres could not be allocated to both motorized and nonmotorized use, as indicated below:

Table VI.22:

	Nonmotorized Recreation	Motorized Recreation	Total
Use Potential When Maximizing Nonmotorized Recreation	1554	2139	3693
Use Potential When Maximizing Motorized Recreation	635	4040	4675

Table VI.22 displays the other resource element outputs that would occur when motorized recreation is maximized. This maximum allocation combination is used because it provides for the greatest total amount of potential recreation use.

(b) Water

The maximum amount of water that can be produced would result from the complete removal of timber. This is neither feasible nor desirable as it would result in severe damage to the soil resource and the stream channels.

The water yield increase that would result from maximizing timber production represents the highest water yield the Forest should attain. Even this yield would have detrimental effect on stream channel stability, and the need for structural protection will increase over time. The maximum water yield increases and the amount of water that meets water quality goals is shown in Table 22.

Current water production is approximately 3.5 million acre-feet per year, and the average annual maximum production potential that would not damage stream channels is calculated to be 3,631,000 acre-feet.

Table VI.23: Average Annual Resource Production Under Maximization of Timber

	1981-1990	1991-2000	2001-2010	2011-2020	2021-2030
Potential Livestock Use (M AUM)	16.3	20.0	22.9	25.4	25.9
Potential Developed Recreation (MRVD)	304	304	304	304	304
Potential Dispersed Recreation (MRVD)	1437	1729	1906	2063	2216
Timber Sales Offered (MMBF)	219	219	219	219	219
Water Yield Increase (M ac-ft)	103.6	166.6	189.3	205.2	210.2
Total Water Yield (MM ac-ft)	3.63	3.69	3.71	3.73	3.73
Water That Meets Quality Goals (MM ac-ft)	3.20	3.25	3.27	3.29	3.29
Big-Game Winter Forage (MAUM)	19.3	19.3	19.3	20.3	20.7
Elk Summer Range Quality Index (% of Existing Situation)	157	157	157	157	157
Elk Population Potential (Number)	9400	9400	9400	9770	9960
Fish Population Potential (M Number)	665	657	650	643	635
Roads Needed for Management					
Collector (Miles)	2800 increases over time to				3528
Local (Miles)	1800 increases over time to				9870
Visual Quality (% of Sensitive Areas Maintained)	38	38	38	38	38
Wilderness (M Acres)	0	0	0	0	0
Roadless Area Management (M Acres)	132.2	132.2	132.2	132.2	132.2
Total Budget (MM$)	25.43	25.45	23.04	21.61	20.93

Present Net Worth = $223,371,000

3. Range of Alternatives

a. Information Used to Develop Alternatives

The benchmarks presented in the previous section were used to develop alternatives that represent a range of resource outputs. For example, the timber and minimum level benchmarks show that the timber base sale levels can range from a minimum of 0 to 219 MMBF per year in decade 1. Alternatives were designed to span the benchmark range while meeting policy constraints such as minimum visual quality and minimum acceptable harvest levels. The PNV benchmark was used to determine the cost of meeting alternative objectives and provided a basis for changing alternative activities to optimize PNV while still meeting the objectives.

Public issues and management concerns addressing timber, wildlife and fisheries, recreation, roads, water and soils, wilderness, range, and visual quality were utilized to develop alternatives which emphasize specific issues or respond to most or all issues minimally.

RPA targets identified in the Regional Guide were considered in at least one alternative. However, it was eliminated from detailed study.

Each roadless area was assigned to wilderness in at least one alternative. One alternative also recommends most of the Forest's roadless area to wilderness while evaluating the opportunity for increasing commodity outputs on roaded lands.

b. Adequate Range of Alternatives

An adequate range of alternatives was developed by first designing alternatives that were required. This included one that maximized timber production and most market opportunities while meeting policy requirements such as the maximum modification visual quality objective (Alternative c); one which optimized nonmarket opportunities such as roadless, wilderness, recreation, visual quality, fisheries, and wildlife (Alternative b); and the current program (Alternative a).

These alternatives were then examined to determine where they fit in the range of outputs expressed by the benchmarks, and how well they responded to the issues, including the roadless evaluation.

An alternative was developed which was timber, forage, and mineral oriented but began to respond invarying amounts to other issues such as big-game cover/forage relationships, visual quality, roadless semiprimitive recreation, and wilderness (Alternative e).

An alternative was developed that emphasized nonmarket values while remaining marginally responsive to market outputs (Alternative f) One alternative was designed to allocate all roadless areas to wilderness while emphasizing market outputs on currently roaded lands (Alternative g).

The criteria developed to evaluate alternatives was used to design an alternative that was marginally responsive to all issues and concerns (Alternative d). Roadless lands with unique features were recommended for wilderness and other roadless lands were recommended to remain roadless to meet semiprimitive recreation and big-game security needs. Visual quality was protected along heavily traveled corridors. Important winter range was protected. Grizzly bear essential habitat was recognized. The timber resource is managed cost effectively, measuring environmental as well as dollar costs and benefits. A departure from nondeclining timber harvest was also analyzed for this set of assignments, objectives, and constraints.

These seven alternatives were evaluated against the benchmarks to determine if an adequate range was displayed to respond to major issues.

Table VI.24: Comparision of Average Annual Production by the Insect Susceptibility Modification and the Proposed Action

	1981-1990	1991-2000	2001-2010	2011-2020	2010-2030
Developed Recreation (MRVD:)					
Modification	365.2	392.6	374.9	385.9	405.1
Proposed Action	365.2	392.6	374.9	385.9	405.1
Dispersed Recreation (MRVD)					
Modification	1181	1283	1392	1478	1536
Proposed Action	1181	1283	1392	1478	1536
Timber-Programmed Sales Offered (MMBF)					
Modification	127	141	141	141	141
Proposed Action	122	146	146	146	146
Reforestation (M acres)					
Modification	11.9	11.7	10.4	11.3	12.8
Proposed Action	9.1	9.4	11.7	9.6	10.7
Timber Stand Improvement (acres)					
Modification	163	229	580	233	5
Proposed Action	192	0	2126	1638	0
Grazing Use projection (MAUM)					
Modification	12.6	14.0	14.0	14.0	14.0
Proposed Action	14.0	14.3	14.3	14.3	14.3
Water Yield Increase (M ac-ft)					
Modification	71.6	108.4	124.7	140.2	156.0
Proposed Action	69.3	101.7	114.4	125.9	138.5
Sediment Production Increase (% increase over natural baseline amount)					
Modification	78	71	69	90	91
Proposed Action	84	84	72	78	81
Elk Population Potential (M Animals)					
Modification	11.5	11.5	11.5	11.5	11.5
Proposed Action	11.6	12.5	12.5	12.5	12.5
Fish Population Potential (M Fish)					
Modification	737	740	741	628	628
Proposed Action	964	963	962	962	962
Total Budget (MM $)					
Modification	18.1	17.9	16	17.3	16.5
Proposed Action	19.4	17.5	16.3	16.8	16.9

Table VI.25: Average Annual Total Resource Production by Alternative (Values are shown for the end of the first decade unless otherwise noted.)

	Resource Use and Development Factors	Alternatives						
		a	b	c	d	e	f	g
1.	Potential Livestock Forage (MAUM's)	13.8	15.1	16.8	14.3	12.4	13.3	11.3
2.	Anticipated Livestock Use (MAUM's)							
	- 1981	13.8	10.1	10.9	13.8	13.8	13.8	13.8
	- 1982 - 1985	13.8	10.6	11.5	14.0	13.1	13.5	12.6
	- 1986 - 1990	13.8	11.9	13.0	14.3	12.4	13.3	11.3
3.	Recreation Use Potential (M Visitor Days)							
	- Type I	339	531	359	498	454	504	651
	- Type II	657	1023	620	413	392	402	503
	- Type III & IV	2631	2139	2543	1106	1182	1076	1084
4.	Wilderness Management (M Acres)	325	351	335	345	130	521	906
5.	Roadless Management (M Acres)	192	380	162	199	310	95	21
6.	Timber							
	- land suitable for timber management (M Acres)	1402	1099	1420	1239	1326	1204	956
	- base harvest schedule (MMBF)							
	- decade 1	111	104	130	107	107	107	90
	- decade 2	133	125	156	131	140	107	120
	- decades 3 thru 12	133	125	156	131-177	140-191	129-171	120-174
	- unregulated volume (MMBF)	7	17	9	15	15	15	15
	- long-term sustained yield (MMBF)	201	173	211	178	191	171	174
7.	Expected Water Yield Increase							
	- 1st decade (% change)	+8	+9	+9	+8	+9	+8	+8
	- streams subject to channel disturbance - 1st decade (% of change)	<1	56	56	<1	<1	<1	<1

Table IV.25 (Continued)

Resource Use and Development Factors	Alternatives a	b	c	d	e	f	g
8. Elk (Big Game)							
- winter range productivity (% of existing)	100	75	85	129	73	67	64
- summer range productivity (% of existing)	100	150	135	125	113	107	32
- net habitat productivity (% of existing)	100	80	90	125	78	72	69
- elk population potential (M number)	9.3	7.4	8.3	11.6	7.2	6.7	6.4
9. Animal Diversity--Land Available for Maintenance of Old-Growth Dependent Species (M Acres)	520.7	853.0	595.1	595.3	483.0	659.0	960.0
10. Aquatic Habitat							
- roaded riparian area (miles)	997	864	1012	839	861	781	671
- sediment production in riparian areas (% change)	+59	+12	+103	+63	____	____	____
- change in amount of riparian area roaded (%)	+13	-2	+15	+4	-2	-11	-24
- fish pop. pot. (M No. > 6") in streams	905	868	823	964	966	968	970
11. Prescribed Burning Scheduled (M Acres)							
- 1st decade	11.1	9.8	11.8	12.6	13.1	16.8	
10.9							
- peak decade	19.7	20.7	22.3	20.1	24.1	20.6	10.9

(footnotes following)

Table VI.25 (Continued)

Resource Use and Development Factors	Alternatives						
	a	b	c	d	e	f	g
12. Road Access							
- roads needed for management 1/							
- collector (miles)	3323	2878	3375	2798	2807	2602	2236
- local (miles)	9852	7691	9217	8311	10547	9922	10656
- collector roads open for public use (miles)	2208	1500	1850	1883	1584	1425	1750
13. Visual Quality (% of inventoried visually sensitive areas maintained)	90	97	61	74	67	74	75
14. Social/Economic 2/							
- changes in person-year area employment	+316	+246	+527	+344	+358	+330	+35
- changes in area income ($MM)	+4.7	+3.7	+7.9	+5.6	+5.7	+5.4	+0.9
- payments to counties ($MM)	2.5	2.5	2.8	2.4	2.4	2.4	2.1
15. Total Budget Required to Implement 2/ ($MM)	18.7	19.4	21.6	19.7	16.2	18.1	14.0
16. Present Net Worth 2/ ($MM)	175.9	173.5	205.6	173.5	221.0	135.0	203.2

(footnotes following)

Table VI.25 (Continued)

Resource Use and Development Factors	Benchmarks h	i	j	k	l	m	RPA
1. Potential Livestock Forage (MAUM's)	13.5	18.1	15.8	11.3	.5	13.8	13.0
2. Anticipated Livestock Use (MAUM's)							
- 1981	13.8	13.8	13.8	13.8	13.8	11.0	
13.8							
- 1982 - 1985	13.6	14.7	14.7	14.7	12.8	11.0	13.0
- 1986 - 1990	13.5	15.7	15.7	15.7	.5	11.0	13.0
3. Recreation Use Potential (M Visitor Days)							
- Type I	122	337	339	651	482	339	416
- Type II	430	620	620	503	284	657	747
- Type III & IV	1082	1816	2284	1084	189	2631	2041
4. Wilderness Management (M Acres)	130	0	344	906	345	325	342
5. Roadless Management (M Acres)	95	132	135	16	375	179	228
6. Timber							
- land suitable for timber management (M Acres)	1320	1521	1335	979	0	1386	1207
- base harvest schedule (MMBF)							
- decade 1	123	217	147	92	0	111	124
- decade 2	154	217	147	122	0	111	144
- decades 3 thru 12	116-283	217	147	135	0	111	162-202
- unregulated volume (MMBF)	18	2	13	10	0	7	13
- long-term sustained yield (MMBF)	240	244	199	174	0	171	176

(footnotes following)

Table VI.25 (Continued)

Resource Use and Development Factors	Benchmarks h	i	j	k	l	m	RPA
7. Expected Water Yield Increase							
- 1st decade (% change)	+9	+9	+8	<1	-3	<1	+8
- streams subject to channel disturbance - 1st decade (% of change)	56	56	<1	<1	<1	<1	<1
8. Elk (Big Game)							
- winter range productivity (% of existing)	83	96	207	64	105	100	112
- summer range productivity (% of existing)	122	157	131	82	110	100	125
- net habitat productivity (% of existing)	88	101	131	69	105	100	119
- elk population potential (M number)	8.2	9.4	12.2	6.4	9.7	9.3	11.1
9. Animal Diversity--Land Available for Maintenance of Old-Growth Dependent Species (M Acres)	440	519	512	922	720	520	605
10. Aquatic Habitat							
- roaded riparian area (miles)	---	---	---	---	750		
- sediment production in riparian areas (% change)	---	---	---	---	---		
- change in amount of riparian area roaded (%)	---	---	---	---	-15		
- fish pop. pot. (M no. > 6") in streams	665	640	665	970	856	905	893
11. Prescribed Burning Scheduled (M Acres)							
- 1st decade	20.7	15.5	22.0	10.9	0	11.1	
11.3 - peak decade	27.6	23.1	29.1	10.9	0	12.0	25.9

(footnotes following)

Table VI.25 (Continued)

Resource Use and Development Factors	Benchmarks						
	h	i	j	k	l	m	RPA
12. Road Access							
- roads needed for management 1/							
- collector (miles)	2758	3528	3110	2236	0	3323	2850
- local (miles)	9260	9870	8728	10656	0	9852	8172
- collector roads open for public use (miles)	1440	798	1942	1750	1650	2208	1650
13. Visual Quality (% of inventoried visually sensitive areas maintained)	38	38	46	75	100	90	38
14. Social/Economic 2/							
- changes in person-year area employment	+414	+1693	+856	+35	-2400	+313	+544
- changes in area income ($MM)	+6.2	+25.2	+12.8	+0.9	-42.6	+4.7	+8.1
- payments to counties ($MM)	2.6	4.4	3.2	2.1	.9	2.5	2.8
15. Total Budget Required to Implement 2/ ($MM)	19.3	25.4	22.1	14.0	2.6	11.3	22.8
16. Present Net Worth 2/ ($MM)	378.8	223.4	223.4	203.2	86.2	170.0	152.3

1/ Total system needs, 5 decades.
2/ All dollar values are based on 1978 dollars.

Table VI.26: Differences from Minimum Level; Analysis of Selected Resources, Use and Development Factors by Alternative

Resource Use and Development Factors	Alternatives						
	a	b	c	d	e	f	g
Anticipated Livestock Use (MAUM's)							
End of decade 1	1.0	2.2	1.3	1.2	.3	.7	.2
End of decade 5	13.3	14.6	16.3	13.8	11.9	12.8	10.8
Land Suitable for Timber Management (M Acres)	1402	1099	1420	1239	1326	1204	956
Timber Base Harvest Schedule (MMBF)							
End of decade 1	111	104	130	107	107	107	90
End of decade 5	133	125	156	131	160	129	126
Long-Term Sustained Yield (MMBF)	201	173	211	178	191	171	174
Elk Population Potential (M number)	-.4	-2.3	-1.4	1.9	-2.5	-3.0	-3.3
Animal Diversity--Land Available for Maintenance of Old-Growth Dependent Species (M Acres)	-200	133	-125	-125	-237	-61	240
Fish Pop. Pot. (M No. > 6") in Streams	49	12	-33	108	110	112	114
Minerals--Lands with Very High Mineral Potential in Roadless Management (M Acres)	-11.8	8.0	-6.1	-10.1	-14.0	64.1	160.4
Roads Needed for Management (Miles)	13175	10569	12592	12780	13354	12524	12892
Roadless Management (M Acres)	-183	5	-213	-176	-65	-280	-354

Table VI.26 (Continued)

Resource Use and Development Factors	Alternatives						
	a	b	c	d	e	f	g
Changes in Area Employment (Ave person-years) End of decade 1	2716	2646	2927	2741	2758	2730	2435
Visual Quality (% of inventoried visually sensitive areas maintained)	-10	-3	-39	-26	-33	-26	-25
Total Budget Required to Implement ($M) End of decade 1	16.1	16.8	18.9	17.1	13.6	15.5	11.4
Present Net Worth (MM 1978 dollars)	90	88	120	88	135	49	117

VII. GLOSSARY

A

ACCESS	See Public Access.
ACRE-EQUIVALENT	A unit of habitat output related to fish or wildlife habitat improvement projects. Acre equivalents are based on the number of acres of habitat that are influenced by one habitat acre actually modified by the habitat improvement project.
ACRE-FOOT	A measure of water or sediment volume equal to the amount which would cover an area of 1 acre to a depth of 1 foot (325,851 gallons or 43,560 cubic feet).
ACTIVITY	A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain forest and range land outputs or achieve administrative or environmental quality objectives.
ACTIVITY FUELS	Debris generated by a Forest activity that increases fire potential such as firewood gathering, precommercial thinning, timber harvesting, and road construction.
ACTIVITY TYPE	The further description of the actions, measures, or treatments within an activity.
ADFLUVIAL	Freshwater fish that migrate from freshwater lakes to freshwater streams to spawn.
ADMINISTRATIVE FACILITIES	Those facilities, such as Ranger Stations, work centers and cabins, which are used by the Forest Service in the management of the National Forest.
ADMINISTRATIVE UNIT	All the National Forest System lands for which one Forest Supervisor has responsibility.
AIRSHED	Basic geographic units in which air quality is managed.
AFFECTED ENVIRONMENT	The biological and physical environment that will or may be changed by actions proposed and the relationship of people to that environment.
ALLOTMENT	See Range Allotment.
ALLOWABLE SALE QUANTITY	The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity".

ALTERNATIVE	A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. One of several policies, plans, or projects proposed for decisionmaking. An alternative need not substitute for another in all respects.
ALTERNATIVE MANAGEMENT DIRECTION STATEMENT	A descriptive paragraph that defines the management theme that guides the assignment of land to management prescriptions and the associated management activities and programs.
ALTERNATIVE, NO ACTION	An alternative that maintains established trends or management direction.
AMENTITY VALUES	Resource use for which market values (or proxy values) are not or cannot be established.
ANADROMOUS FISH	Fish which spend much of their adult life in the ocean, returning to inland waters to spawn; e.g., salmon, steelhead.
ANALYSIS AREA	One or more capability areas combined for the purpose of analysis in formulating alternatives and estimating various impacts and effects.
ANALYSIS OF THE MANAGMENT SITUATION	A determination of the ability of the planning area to supply goods and services in response to society's demand for those goods and services.
ANALYSIS PERIOD, LONG TERM	A time horizon of expenditures in an analysis that is two or more 5-Year RPA planning periods in duration. RPA, program, Regional Guide, and Forest plan analyses have long-term periods.
ANALYSIS PERIOD, SHORT TERM	A time horizon of expenditures in an analysis that is only several years in duration. A budget analysis is short-term.
ANIMAL UNIT MONTH (AUM)	The quantity of forage required by the equivalent of a 1000 lb. mature cow for one month.
ANNUAL FOREST PROGRAM	The summary or aggregation of all projects for a given year that, for a given level of funding, make up an integrated (multi-functional) course of action on a Forest planning area.
AQUATIC ECOSYSTEM	A stream channel, lake or estuary bed, the water itself, and the biotic communities that occur therein.
ARETE	A sharp, narrow ridge or crest of a mountain.

ARTERIAL ROADS	Roads comprising the basic access network for National Forest System administrative and management activities. These roads serve all resources to a substantial extent, and maintenance is not normally determined by the activities of any one resource. They provide service to large land areas and usually connect with public highways or other Forest arterial roads to form an integrated network of primary travel routes. The location and standards are often determined by a demand for maximum mobility and travel efficiency rather than by a specific resource management service. Usually they are developed and operated for long term land and resource management purposes and constant service.
ASSESSMENT	The Renewable Resource Assessment required by the Resource Planning Act.
ASSET, CAPITAL	A natural resource, manmade structure, facility, or improvement in natural resources used as an input in production processes.
ASSET, RESIDUAL	The remaining value of a capital asset at the end of the time horizon of the planning or analytical process.
AUTECOLOGY	That branch of ecology which deals with the interrelationship between the individual organism or species and its environment.
AVAILABLE FOREST LAND	Land that has not been legislatively or administratively withdrawn from timber production by the Secretary of Agriculture or Forest Service Chief.
AUM	See Animal Unit Month.
AVERAGE ANNUAL CUT	The volume of timber harvested in a decade, divided by 10.

B

BASE SALE SCHEDULE	A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade and this planned sale and harvest is not greater than the long-term sustained yield capacity.
BENCHMARK	Reference points that define the bounds within which feasible management alternatives can be developed. Benchmarks may be defined by resource output or economic measures.
BENEFIT-COST RATIO	Measure of economic efficiency, computed by dividing total discounted primary benefits by total discounted economic costs.

BENEFIT, DIRECT	A primary benefit that fulfills specified objectives of the policy, program, or project.
BENEFIT, INDUCED	A primary benefit from an output that is incidental to the objectives of the policy, program, or project.
BENEFIT, PRIMARY	A benefit accruing to resource owners from a primary output, which may be direct or induced, or a residual asset. Primary benefits are components of net public benefits.
BENEFIT, SECONDARY	A benefit accruing to parties other than the resource owners, including effects on local, Regional, and national economies and on consumers of outputs. Secondary benefits are not necessarily included in net public benefits.
BENEFIT (VALUE)	Inclusive terms to quantify the results of a proposed activity, project or program expressed in monetary or nonmonetary terms.
BEST MANAGEMENT PRACTICES (BMP)	The set of practices in the Forest Plan which, when applied during implementation of a project, ensures that water related benefical uses are protected and that State water quality standards are met. BMP's can take several forms. Some are defined by State regulation or memoranda of understanding between the Forest Service and the States. Others are defined by the Forest interdisciplinary planning team for application Forest-wide. Both of these kinds of BMP's are included in the Forest Plan as Forest-wide Standards. A third kind are identified by the interdisciplinary team for application to specific management areas; these are included as Mangement Area Standards in the appropriate management areas. A fourth kind, project level BMP's, are based on site specific evaluation and represent the most effective and practicable means of accomplishing the water quality and other goals of the specfic area involved in the project. These project level BMP's can either supplement or replace the Forest Plan standards for specific projects.
BIG GAME	Those species of large mammals normally managed as a sport hunting resource.
BIG GAME SUMMER RANGE	Land used by big game during the summer months.
BIG GAME WINTER RANGE	The area available to and used by big game through the winter season.
BIOLOGICAL POTENTIAL	The maximum possible output of a given resource limited only by its inherent physical and biological characteristics.

BIOLOGICAL GROWTH POTENTIAL	The average net growth attainable in a fully stocked natural forest stand.
BOARD FOOT	A unit of measurement represented by a board one foot square and one inch thick.
BROADCAST BURN	Allowing a controlled fire to burn over a designated area within well-defined boundaries, for reduction of fuel hazard, as a silvicultural treatment, or both.
BOARD FOOT/ CUBIC FOOT CONVERSION	The mathematical ratio of the board feet contained in one cubic foot of timber. This ratio varies with tree species, diameter, height and form factors.
BROWSE	Twigs, leaves, and young shoots of trees and shrubs on which animals feed; in particular, those shrubs which are utilized by big game animals for food.

C

CANOPY	The more or less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.
CAPABILITY	The potential of an area of land and or water to produce resources, supply goods and services, and allow resource uses under a specified set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fires, insects, and disease.
CAPABILITY AREA	A geographic delineation used to describe characteristics of the land and resources in integrated Forest planning. Capability areas may be synonomous with ecological land units, ecosystems or land response units.
CAPITAL INVESTMENT	Investment in facilities such as roads and structures with specially-appropriated funds.
CARRYING CAPACITY	1 (recreation): the amount of recreation use an area can sustain without deterioration of site quality; 2 (wildlife): the maximum number of animals an area can support during a given period of the year; 3 (range): the maximum stocking rate possible without damaging the vegetation or related resources. Carrying capacity may vary from year to year on the same area due to fluctuating forage production.

CAVITY	A hollow in a tree that is used by birds or mammals for roosting and reproduction.
CEQ	See Council of Environmental Quality.
CFR	Code of Federal Regulations.
CHARGEABLE VOLUME	Chargeable volume is all volume that is included in the growth and yield projections for the selected management prescriptions used to arrive at the "allowable sale quantity," based on Regional utilization standards.
CLEARCUTTING	Harvesting of all trees in one cut. It prepares the area for a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as separate age class in planning. Regeneration is obtained through natural seeding, or through planting or direct seeding.
CLEARCUT EQUIVALENT	The portion of a forested area that has had all trees removed via clearcutting in the past and in which the regenerating trees are still small enough that from a hydrological standpoint the area has not recovered to its former water use/water yield balance.
CLIMAX PLANT COMMUNITY	The final or stable biotic community in a developmental series.
CLOSURE	The administrative order that does not allow specified uses in designated areas or on Forest development roads or trails.
CMAI	See Culmination of Mean Annual Increment.
CODE-A-SITE	A method of recording and evaluating dispersed recreation camping sites.
COEFFICIENT (COST, VALUE, YIELD)	The numeric units used to include costs, values, and outputs in the analysis model used in the formulation of the Forest Plan.
COLIFORM BACTERIA	Any of several bacteria found in the large intestine of man and animals, the presence of which indicated fecal pollution.
COLLECTOR ROADS	Roads constructed to serve two or more elements but which do not fit into the other two road categories (arterial or local). Construction costs of these facilities are prorated to the respective element served. These roads serve smaller land areas and are usually connected to a Forest arterial or public highway. They collect traffic from local Forest roads or terminal facilities. The location and standard are

	influenced by both long term multi-resource service needs and travel efficiency. Forest collector roads are operated for constant or intermittent service, depending on land use and resource management objectives for the area served by the facility.
COMMERICAL FOREST LAND (SUITABLE TIMBER LAND)	Land that is producing, or is capable of producing, crops of industrial wood and (1) has not been withdrawn by Congress, the Secretary of Agriculture or the Chief of the Forest Service; (2) where existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity or watershed conditions; and (3) where existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be obtained within 5 years after final harvesting.
COMMERCIAL TIMBER SALES	The selling of timber from National Forest lands for the economic gain of the party removing and marketing the trees.
COMMODITIES	Resources with commercial value; all resource products which are articles of commerce, such as timber, range forage and minerals.
COMMON MATERIALS	See Minerals, Common Variety.
COMMUNITY COHESION	The degree of unity and cooperation within a community in working toward shared goals and solutions to problems.
COMMUNITY STABILITY	The capacity of a community to absorb and cope with change without major hardship to institutions or groups within the community.
CONCERN	See Management Concern.
CONDITION CLASS	A descriptive category of the existing tree vegetation as it relates to size, stocking and age.
CONGRESSIONALLY DESIGNATED AREAS	Areas established by Congressional legislation, such as National Wildernesses, National Wild and Scenic Rivers, and National Recreation Areas.
CONSTRAINT	A confinement or restriction on the range of permissible choices.
CONSUMPTIVE USES	Uses of a resource that reduce the supply. Examples of some consumptive uses of water are irrigation, domestic and industrial water use, grazing, and timber harvest.
CONTINENTAL DIVIDE	The drainage divide between waters flowing to the Atlantic Ocean and the Pacific Ocean.

CORD	A unit of gross volume measurement for stacked roundwood based on external dimensions, generally implies a stack of four feet by four feet vertical cross section and eight feet long, contains 128 stacked cubic feet.
CORDUROY	A method of subgrade reinforcement often used on trails and for some roads whereby logs are placed perpendicular to the traveled way to support a surfacing material.
CORRIDOR (UTILITY CORRIDOR)	A linear strip of land which has ecological, technical, economic, social, or similar advantages over other areas for the present or future location of transportation or utility routes.
COST	The negative or adverse effects or expenditures resulting from an action. Costs may be monetary, social, physical or environmental in nature.
COST EFFICIENCY	The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specific levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates of return may be appropriate.
COST-SHARE	Refers to the process of cooperating in the joint development of a road system. The document executed through this process, called "Road Right-of-Way Construction and Use Agreement," specifies the terms of developing the transportation system for a specified land area.
COUNCIL ON ENVIRONMENTAL QUALITY	An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.
COVER/FORAGE RATIO	The ratio of tree cover (usually conifer types) to foraging areas (natural openings, clearcuts, etc.).
CRITICAL HABITAT	Specific areas within the geographical area occupied by a species on which are found those physical and biological features (1) essential to the conservation of the species and (2) which may require special management considerations or protection. Critical habitat shall not include the entire geographic area which can be occupied by the threatened and endangered species.
CUBIC FOOT	The amount of wood volume equivalent to a cube 1 foot by 1 foot by 1 foot.

CULMINATION OF MEAN ANNUAL INCREMENT (CMAI)	The point at which the volume increment for a tree or stand of trees has achieved its highest mean value. Mean annual increment is based on expected growth according to the management intensities and utilization standards assumed in the Forest Plan. The CMAI is calculated by dividing the attained growth (volume) by its corresponding age.
CULTURAL RESOURCES	The physical remains of human activity (artifacts, ruins, burial mounds, petroglyphs, etc.) and conceptual content or context (as a setting for legendary, historic, or prehistoric events, as a sacred area of native peoples, etc.) of an area of prehistoric or historic occupation.
CUTTING CYCLE	For a crop or stand, the planned interval of time between the beginning of one cutting period and the beginning of the succeeding cutting period.

D

DEMAND	The amount of output that users are willing to take at a specific price, time period, and conditions of sale.
DEMAND ANALYSIS	A study of the factors affecting the schedule of demand for a good or service, including the price-quantity relationship, if applicable.
DEPARTURE	A schedule which deviates from the principle of nondeclining flow by exhibiting a planned decrease in the timber sale and harvest schedule at any time in the future.
DEPENDENT COMMUNITIES	Communities whose social, economic, or political life would become discernably different in important respects if market or non-market outputs from the National Forests were cut off.
DEVELOPED RECREATION	Recreation that occurs where improvements enhance recreation opportunities and accommodate intensive recreation activities in a defined area.
DEVELOPED RECREATION SITES	Relatively small, distinctly defined area where facilities are provided for concentrated public use, i.e., campgrounds, picnic areas and swimming areas.
DIAMETER BREAST HEIGHT (DBH)	The diameter of a tree measured 4 1/2 feet above the ground.
DISCOUNT RATE	An interest rate that reflects the cost or time value of money. It is used in discounting future costs and benefits.

DISCOUNTING	An economic adjustment for the time value of money; mathematical reduction of costs and/or benefits which occur in the future to the present time for purposes of comparison.
DISPERSED RECREATION	That portion of outdoor recreation use which occurs outside of developed sites in the unroaded and roaded Forest environment i.e., hunting, backpacking and berry picking.
DISTRICT RANGER	The official responsible for administering the National Forest System Lands on a Ranger District.
DIVERSITY	The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan.

E

ECONOMICS	The study of how limited resources, goods, and services are allocated among competing uses.
ECOSYSTEM	A complete, interacting system of organisms considered together with their environment (for example; a marsh, a watershed, or a lake.)
ECOTONE	A transition or junction zone between two or more diverse communities (ecosystems).
EDAPHIC	The influence of soils on living organisms, particularly plants, including man's use of the land for plant growth.
EDGE	The more or less well-defined boundary between two or more elements of the environment, i.e., field/woodland.
EFFECTS	Physical, biological, social and economic results (expected or experienced) resulting from achievement of outputs. Effects can be direct, indirect and cumulative.
EFFICIENCY, ECONOMIC	The usefulness of inputs (costs) to produce outputs (benefits) and effects when all costs and benefits that can be identified and valued are included in the computations. Economic efficiency is usually measured using present net value, though use of benefit-cost ratios and rates-of-return may sometimes be appropriate.
ELK HIDING COVER	Vegetation, primarily trees, capable of hiding 90 percent of an elk seen from a distance of 200 feet or less.

ELK SECURITY COVER (EFFECTIVE ELK SECURITY COVER)	Elk hiding cover modified by open roads. The greater the density of open roads within an area, the less effective is the hiding cover in providing security for elk.
ENDANGERED SPECIES	Any species, plant or animal, which is in danger of extinction throughout all or a significant portion of its range. Endangered species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act.
ENDING INVENTORY CONSRAINT (EIC)	Constraint to ensure that the total timber volume left at the end of the planning horizon will equal or exceed the volume that would occur in a managed Forest.
ENVIRONMENTAL ANALYSIS	An analysis of alternative actions and their predictable short and long-term environmental effects which include physical, biological, economic, social, and environmental design factors and their interactions.
ENVIRONMENTAL ASSESSMENT	A concise public document for which a Federal agency is responsible that serves to: (1) Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. (2) Aid an agency's compliance with the National Environmental Policy Act when no environmental impact statement is necessary. (3) Facilitate preparation of an environmental impact statement when one is necessary.
ENVIRONMENTAL IMPACT STATEMENT, DRAFT (DEIS)	A detailed written statement as required by Sec. 102(2)(C) of the National Environmental Policy Act.
ENVIRONMENTAL IMPACT STATEMENT FINAL (FEIS)	The final version of the public document required by NEPA. (see above)
EPHEMERAL STREAMS	Streams that flow only as a direct response to rainfall or snowmelt events. They have no baseflow.
EROSION	The group of processes whereby earth or rocky material is worn away by natural sources such as wind, water or ice and removed from any part of the earth's surface.
ESCAPEMENT	The number of adult anadromous fish escaping past commercial and recreational harvest fisheries and other sources of mortality, to upstream spawning areas.

EVEN-AGED MANAGEMENT	The application of a combination of actions that result in the creation of stands in which trees of essentially the same age grow together. Managed even-aged Forests are characterized by a distribution of the stands of varying ages (and, therefore, tree sizes) throughout the Forest area. The difference in ages between trees forming the main canopy level of the stand does not usually exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Cutting methods include clearcutting, shelterwood cutting, and seed tree cutting.
EXTRACTIVE USE	Use of natural resources that removes them from their natural setting.

E

FAMILY UNIT	A camp or picnic spot with table, fireplace, tent pad, and parking spot.
FEE SITE	A Forest Service recreation area in which users must pay a fee. Fee sites must meet certain standards and provide certain facilities as specified in the Forest Service Manual.
FINAL CUT	Removal of the last seed bearers or shelter trees after regeneration is considered to be established under a shelterwood system.
FLOOD PLAIN	The lowland and relatively flat area adjoining inland waters, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.
FORAGE	All browse and nonwoody plants available to livestock or wildlife for feed.
FORB	Any herbaceous plant other than true grasses, sedges or rushes.
FOREST AND RANGELAND RENEWABLE RESOURCES PLANNING ACT OF 1974	An act of Congress which requires the assessment of the Nation's renewable resources and the periodic development of a national renewable resources program. It also requires the development, maintenance and, as appropriate, revision of land and resource management plans for units of the National Forest System (e.g., National Forest).
FOREST LAND	Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use. Lands developed for non-forest use include areas for crops, improved pasture,

	residential, or administrative areas, improved constructed roads of any width, and adjoining road clearing and powerline clearing of any width. The term "occupied" when used to define forest land, will be measured by canopy cover of live forest trees at maturity. The minimum area for classification of forest land will be 1 acre or greater. Unimproved roads, trails, stream and clearings in forest areas are classified as forest if they are less than 120 feet in width.
FOREST LOCAL ROADS	Roads constructed and maintained for, and frequented by, the activities of a given resource element. Some uses may be made by other element activities, but normally maintenance is not affected by such use. These roads connect terminal facilities with Forest collector or Forest arterial roads or public highways. The location and standard usually are determined by the requirement of a specific resource activity rather than by travel efficiency. Forest local roads may be developed and operated for constant or intermittent service, depending on land use and resource management objectives for the area served by the facility.
FOREST SUPERVISOR	The official responsible for administering the National Forest System lands in a Forest Service Administrative unit, which may consist of one or more National Forests or all the Forests within a State.
FOREST SYSTEM ROADS	A road wholly or partly within or adjacent to and serving the National Forest System and which is necessary for the protection, administration and utilization of the National Forest System and the use and developments of its resources.
FORPLAN	A linear programing system used for developing and analyzing Forest planning alternatives.
FOREST-WIDE MANAGEMENT GUIDELINES	An indication or outline of policy or conduct dealing with the basic management of the Forest. Forest-wide management guidelines apply to all areas of the Forest regardless of the other management prescriptions applied.
FSH	Forest Service Handbook.
FSM	Forest Service Manual.
FUEL BREAK	A zone in which fuel quantity has been reduced or altered to provide a position for suppression forces to make a stand against wildfire. Fuel breaks are designated or constructed before the outbreak of a fire. Fuel breaks may consist of one or a combination of the following: natural barriers, constructed fuel breaks, manmade barriers.

FUELS	Include both living plants; dead, woody vegetative materials; and other vegetative materials which are capable of burning.
FUELS MANAGEMENT	Manipulation or reduction of fuels to meet Forest protection and management objectives while preserving and enhancing environmental quality.
FUELS TREATMENT	The rearrangement or disposal of natural or activity fuels to reduce the fire hazard.
FULL-SERVICE MANAGEMENT	The administration, operation and maintenance of developed recreation sites to established standards with the objective to provide a pleasant recreation experience for the visitor and exceed the minimum health and safety needs of the visitors.

G

GAME SPECIES	Any species of wildlife or fish for which seasons and bag limits have been prescribed, and which are normally harvested by hunters, trappers, and fisherman under State or Federal laws, codes, and regulations.
GOAL	A concise statement that describes a desired condition to be achieved. It is normally expressed in broad, general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed.
GOODS AND SERVICES	The various outputs, including onsite uses, produced by forest and rangeland renewable resources.
GRAZING ALLOTMENT	See Range Allotment.
GRIZZLY BEAR RECOVERY TEAM	An interagency group designated to remove the grizzly bear from threatened species designation in the lower 48 states.
GROUP SELECTION CUTTING	A cutting method to develop and maintain uneven-aged stands by the removal of small groups of trees to meet a predetermined goal of size distribution and species composition in remaining stands.
GROWING STOCK LEVEL	A relative stand density measure used to guide a management objective such as maximizing timber volume yields or optimizing big game thermal cover.
GUIDELINE	See Standard and Guideline.

H

HABITAT TYPE	An aggregation of all land areas potentially capable of producing similar plant communities at climax.
HABITAT TYPE GROUP	A logical grouping of habitat types to facililtate resource planning and public presentations.
HIDING COVER	Trees of sufficient size and density to conceal animals from view at 300 feet.

I

IMPACT ANALYSIS AREA	The delineated area subject to significant economic and social impacts from Forest Service activities included in an economic or social impact analysis.
IMPROVEMENT CUTTING	Removing trees of undesirable species, form, or condition from the main canopy in stands past the sapling stage to improve the composition and quality.
INDICATOR SPECIES	Species identified in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish including those that are socially or economically important.
INDIRECT EFFECTS	Secondary effects which occur late in time or in other locations than the inital action or significantly later in time.
INDIRECT OUTPUTS	Outputs caused by the action but which are later in time or farther removed in distance but still reasonably foreseeable.
INDIVIDUAL TREE SELECTION HARVEST	A cutting method to develop and maintain uneven-age stands by the removal of selected trees from specified age classes over the entire stand area in order to meet a predetermined goal of age distribution and species in the remaining stand.
INDUCED OUTPUTS	Outputs in the private sector induced by the direct outputs produced on the Forest.
INDUSTRIAL WOOD	All commercial roundwood products except fuelwood.
INSTREAM FLOWS	The minmum water volume (cubic feet per second) in each stream necessary to meet seasonal streamflow requirements for maintaining aquatic ecosystems, visual quality, recreational opportunities and other uses.

IN-MIGRATION	The movement of human population into an area.
INTEGRATED PEST	A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. The information considered in selecting appropriate strategy includes the impact of the unregulated pest population on various resource values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable.
INTEGRATED PEST MANAGEMENT	A systematic decisionmaking process and the resultant management actions which derive from consideration of pest--host systems and evaluation of alternatives for managing pest populations at levels consistent with resource management objectives.
INTENSIVE GRAZING	Grazing management that controls distribution of cattle and duration of use on the range, usually by fences, so parts of the range are rested during the growing season.
INTER-DISCIPLINARY TEAM (ID TEAM)	A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view to bear on the problem.
INTERMEDIATE HARVEST	Any removal of trees from a stand between the time of its formation and the regeneration cut. Most commonly applied intermediate cuttings are release, thinning, improvement, and salvage.
INTERMITTENT STREAM	A stream which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow.
INTERPRETATIVE SERVICES	Visitor information services designed to inform and educate Forest visitors, improving their understanding, appreciation and enjoyment of National Forest resources.
INVENTORY DATA	Recorded measurements, facts, evidence, or observations on Forest resources such as soil, water, timber, wildlife, range, geology, minerals, and recreation which was used to determine the capability and opportunity of the Forest to be managed for those resources.
ISSUE	See Public Issue.

K

"KEY REACHES" OF WATERSHED SYSTEM	A representative stream segment that can be expected to be sensitive to water resource changes and which adequately reflects the effects of management of the stream channel, the water, and their beneficial uses.
KEY SUMMER RANGE	An area that is potentially capable of supporting big game during the summer use period.
KEY WINTER RANGE	The portion of the yearlong range where big game find food and/or cover during severe winter weather.

L

LAND EXCHANGE	The conveyance of non-Federal Land or interests to the United States in exchange for National Forest System land or interests in land.
LANDING	Any place where round timber is assembled for further transport.
LANDLINE LOCATION	The legal identification, accurate location, and description property boundaries.
LANDTYPE	An inventory map unit with relatively uniform potential for a defined set of land uses. Properties of soils, landform, natural vegetation and bedrock are commonly components of landtype delineation used to evaluate potentials and limitations for land use.
LANDTYPE GROUP	A logical grouping of landtypes that facilitate resource planning.
LEASABLE MINERALS	See Minerals, Leasable.
LEVEL I FIRE ANALYSIS	General fire management analysis to provide historical information that assists the interdisciplinary team in the analysis of the management situation and formulation of alternatives for the Forest Plan.
LEVEL II FIRE ANALYSIS	An analytical process which guides the implementation of fire management activities of the Forest Plan.

LINEAR PROGRAMMING	A mathematical method used to determine the optimal distribution of limited resources between competing demands when both the objective (e.g., profit or cost) and the restrictions on its attainment are expressible as a system of linear equalities or inequalities (e.g., y=a+bx).
LIMITED SURFACE USE STIPULATION	A mineral lease clause, which, if attached to a mineral lease, prohibits surface disturbing activities on the lease pending submission of a surface use and operations plan which is satisfactory to the BLM and the surface management agency for protection of special existing or planned uses. This stipulation may, when site-specific operations are proposed and analyzed, be modified if other less stringent mitigation is determined to be sufficient to protect the other resources.
LOCAL DEPENDENT INDUSTRIES	Local industries relying on National Forest outputs for economic activity.
LOCATABLE MINERALS	See Minerals locatable.
LOESS	A uniform and unstratified fine sand or silt transported by wind.
LONG-TERM SUSTAINED YIELD CAPACITY (LTSY)	The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified intensity of management consistent with multiple use objectives

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M

M	Thousand
MM	Million
MAUM	Thousand Animal Unit Months.
MBF	Thousand Board Feet
MMBF	Million Board feet
MMCF	Million Cubic feet
MANAGEMENT ACTION	Any activity undertaken as part of the administration of the Forest.

MANAGEMENT AREA	An aggregation of capability areas which have common management direction and may be noncontiguous in the Forest. Consists of a grouping of capability areas selected through evaluation procedures and used to locate decisions and resolve issues and concerns.
MANAGEMENT CONCERN	An issue, problem, or a condition which constrains the range of management practices identified by the Forest Service in the planning process.
MANAGEMENT DIRECTION	A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.
MANAGEMENT EFFECTS	Physical, biological, social and economic responses to management practices.
MANAGEMENT EMPHASIS	A management practice or combination of management practices designed to stress production of a particular type of output or mix of outputs.
MANAGEMENT INTENSITY	A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services.
MANAGEMENT OPPORTUNITY	A statement of general actions, measures, or treatments that address a public issue or management concern.
MANAGEMENT PRACTICE	A specific activity, measure, course of action, or treatment. Proposed management practices are those scheduled in the first decade of Forest Plan implementation. Probable management practices are those scheduled in the second decade of Forest Plan implementation.
MANAGEMENT PRESCRIPTION	Management practices and intensities selected and scheduled for application on a specific area to attain multiple use and other goals and objectives.
MANAGEMENT STANDARDS AND GUIDELINES	See Standard and Guideline.
MARKET VALUE	The unit price of an output normally exchanged in a market after at least one stage of production, expressed in terms of what people are willing to pay as evidenced by market transactions.
MASS MOVEMENT	Downslope movement of a portion of the land's surface, i.e., a single landslide or the gradual simultaneous, downhill movement of the whole mass of loose earth material on a slope face.

MATURE TIMBER	Individual trees or stands of trees that in general are at their maximum rate in terms of the physiological processes expressed as height, diameter, and volume growth.
MAXIMUM RESOURCE POTENTIAL	The maximum possible output of a given resource limited only by its inherent physical and biological characteristics.
MEAN ANNUAL INCREMENT	The total volume increase in a tree or stand of trees up to a given age, divided by that age.
MINERAL ENTRY	The filing of a mining claim on Federal land to obtain the right to mine any locatable minerals it may contain. Also the filing for a mill site on Federal land for the purpose of processing off-site locatable minerals.
MINERAL WITHDRWAL	A formal designation by the Secretary of Interior which precludes entry or disposal of mineral commodities under the mining and/or mineral leasing laws.
MINERAL EXPLORATION	The search for valuable minerals.
MINERAL PRODUCTION	The extraction of mineral deposits.
MINERALS, COMMON VARIETY	Deposits of sand, stone, gravel, etc. of widespread occurrence and not having distinct or special value. These deposits are used generally for construction and decorative purposes and are disposed of under the Materials Act of 1947.
MINERALS, LEASABLE	Those minerals which are disposed of under authority of the various mineral leasing acts. Minerals include coal, oil, gas, phosphate, sodium, potassium, oil shale, sulfur (in Louisiana and New Mexico), and geothermal steam.
MINERALS, LOCATABLE	Those minerals which are disposed of under the general mining laws. Included are minerals such as gold, silver, lead, zinc and copper which are not classed as leasable or salable.
MINIMUM MANAGEMENT REQUIREMENTS	Standards for resource protection, vegetative manipulation, silviculturist practices, even-aged management, riparian areas, soil and water and diversity, to be met in accomplishing National Forest System goals and objectives (see 36 CFR 219.27).
MINIMUM RESOURCE STANDARDS	Specific conditions of individual resources which must be maintained in order to meet minimum management requirements (36 CFR 219.27) and/or other legal requirements.

MINIMUM STREAMFLOWS	A specified level of flow through a channel that must be maintained by the users of a stream for biological, physical, or other purposes.
MINIMUM VIABLE	See Viable Population.
MINING CLAIMS	A geographic area of the public lands held under the general mining laws in which the right of exclusive possession is vested in the locator of a valuable mineral deposit. Includes lode claims, placer claims, mill sites and tunnel sites.
MITIGATE	To lessen the severity.
MITIGATION	Avoiding or minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact by preservation and maintenance operations during the life of the action.
MODIFICATION (VQO)	See Visual Quality Objective (VQO).
MONITORING AND EVALUATION	The periodic evaluation on a sample basis of Forest Plan management practices to determine how well objectives have been met and how closely management standards have been applied.
MONTANA WILDERNESS STUDY ACT AREAS	Those areas that are required to be studied for their wilderness suitability under the Montana Wilderness Study Act of 1977 (Public Law 95-150).
MOUNTAIN PINE BEETLE	A species of Bark Beetle that spends the major portion of their life cycle in a tree's cambium layer. Through a combination of the insect feeding on the cambium layer and the introduction of fungi which stop the resin flow, the tree is girdled and killed.
MULTIPLE USE	The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

N

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)	An act which encourages productive and enjoyable harmony between man and his environment; promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enriches the understanding of the ecological systems and natural resources important to the Nation; and establishes a Council on Environmental Quality.
NATIONAL FOREST LANDSCAPE MANAGMENT SYSTEM	The planning and design of the visual aspects of multiple use land management in such ways that the visual effects maintain or upgrade man's psychological welfare.
NATIONAL FOREST MANAGEMENT ACT (NFMA)	A law passed in 1976 as amendments to the Forest and Rangeland Renewable Resources Planning Act that requires the preparation of Regional and Forest plans and the preparation of regulations to guide that development.
NATIONAL FOREST SYSTEM	All national forest lands reserved or withdrawn from the public domain of the United States, all national forest lands acquired through purchase, exchange, donation, or other means, the national grasslands and land utilization projects administered under Title III.
NATIONAL RECREATION TRAILS	Trails designated by the Secretary of the Interior or the Secretary of Agriculture as part of the national system of trails authorized by the National Trails System Act. National recreation trails provide a variety of outdoor recreation uses.
NATIONAL REGISTER OF HISTORIC PLACES	A listing maintained by the National Park Service of areas which have been designated as being of historical significance. The Register includes places of local and State significance as well as those of value to the Nation as a whole.
NATIONAL WILD AND SCENIC RIVER SYSTEM	Rivers with outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values designated by Congress under the Wild and Scenic Rivers Act for preservation of their free-flowing condition.
NATIONAL WILDERNESS PRESERVATION SYSTEM	All lands covered by the Wilderness Act and subsequent wilderness designations, irrespective of the department or agency having jurisdiction.
NONDECLINING YIELD	See Nondeclining Flow.

NEPA	See National Environmental Policy Act.
NFMA	See National Forest Management Act.
NET PUBLIC BENEFITS	An expression used to signify the overall long-term value to the Nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield.
NO ACTION ALTERNATIVE	The management direction, activities, outputs, and effects most likely to exist in the future if the current plan would continue unchanged.
NONCHARGEABLE VOLUME	All volume that is not included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity. It also includes all volume removed from nonsuitable lands.
NONCOMMODITY OUTPUTS	See Output, Nonmarket.
NONCONSUMPTIVE USE	Those uses of resources that do not reduce the supply. Nonconsumptive uses of water include hydroelectric power generation, boating, swimming, etc.
NONDECLINING FLOW	The principle that the quantity of timber planned for sale or harvest for any future decade must be equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity.
NONEXTRACTIVE USE	Use which does not remove a resource from its natural setting.
NONGAME	Species of animals which are not managed as a sport hunting resource.
NONPOINT SOURCE POLLUTION	Sources from which the pollutants discharged are: (1) induced by natural processes, including precipitation, seepage, percolation, and runoff; (2) not traceable to any discrete or identifiable facility and (3) better controlled through the utilization of Best Management Practices, including process and planning techniques. This includes natural pollution sources not directly or indirectly caused by man.

NONSTOCKED	A stand of trees or aggregation of stands that have a stocking level below the minimum specified for meeting the prescribed management objectives.
NO-SURFACE OCCUPANCY STIPULATION	A mineral lease clause which, if attached to a mineral lease prohibits the lessee from constructing roads, well pads or otherwise occupying the land surface unless, upon site-specific review, it is determined by the authorized officer that the requirements of the stipulation can be modified if other less stringent mitigation is determined to be sufficient to protect the other resources.
NOTICE OF INTENT	Written notice to the affected District Ranger by those who intend to engage in mining activity on the Forest of proposed prospecting, exploration, mining, and mineral processing activities.

O

OBJECTIVE	A concise time-specific statement of measurable planned results that respond to preestablished goals. An objective forms the basis for further planning, to define the precise steps to be taken and the resources to be used in achieving identified goals.
OBJECTIVE FUNCTION	A term used in linear programming describing the criteria to be optimized. Examples of objective functions are: maximize present net value, minimize cost or maximize timber.
OFF-ROAD VEHICLE	Any vehicle capable of being operated off an established road or trail, e.g., motorbikes, four-wheel drives, and snowmobiles.
OLD GROWTH TIMBER	See Overmature Timber.
OPPORTUNITY COST	An opportunity cost is value foregone. In this analysis it is a cost calculated as the difference between present net value of the alternative and the present net value of the maximum PNV increment.
OPTIMUM	The greatest level of production that is consistent with other resource requirements as constrained by environmental, social and economically sound conditions.

OUTPUT	A good, service, or on-site use that is produced from forest and rangeland resources. Definitions of Forest and rangeland output definitions, codes and units measure are contained in the Management Information Handbook (FSH 1309.11). Examples are: X06-Softwood Sawtimber Production - MBF; X80-Increased Water Yield - Acre Feet; W01-Primitive Recreation Use - RVD's.
OUTPUT, CONTROLLED	The amount of an output which management has the legal and practical ability to control with management activities.
OUTPUT, DIRECT	An output that fulfills specified objectives of the policy, program, or project being evaluated.
OUTPUT, INDUCED	A good, service, or on-site use which is incidental to the objectives of the resource activity. An example is the timber harvest activity which produces a primary output of board feet of timber and an induced output of acres of improved wildlife habitat because of the harvest activity.
OUTPUT, MARKET	A good, service, or on-site use that can be purchased at a price.
OUTPUT, NON-CONTROLLED	The amount of an output which will occur regardless of management activity.
OUTPUT, NONMARKET	A good, service, or on-site use not normally exchanged in a market.
OUTPUT, PRIMARY	A good, service, or on-site use that results from the completion of an activity, project or program that meets the specific objectives of the resource. Examples are board feet of timber, recreation visitor days, etc.
OVER-THE-COUNTER SALE	The selling of Forest products without bidding, as requested by the general public, usually for products such as fuelwood, corral poles, ornamental shrubs, etc.
OVERMATURE TIMBER	Individual trees or stands of trees that in general are past their maximum rate in terms of the physiological processes expressed as height, diameter and volume growth.
OVERSTORY	That uppermost canopy of the forest when there is more than one level of vegetation.
OVERTHRUST BELT	A complex geologic feature, extending from Alaska to Mexico, which resulted from compressional stresses within the earth, and which is characterized by abundant thrust faults. This zone passes through and includes all of western Montana.

P

PARTIAL RETENTION (VQO)	See Visual Quality Objective (VQO).
PARTICULATES	Small particles suspended in the air and generally considered pollutants.
PATENTED MINING CLAIMS	A patent is a document which conveys title to land. When patented, a mining claim becomes private property and is land over which the United States has no property rights, except as may be reserved in the patent. After a mining claim is patented, the owner does not have to comply with requirements of the General Mining Law or implementing regulations.
PAYMENT IN LIEU OF TAXES	Payments to local or State governments based on ownership of Federal land and not directly dependent on production of outputs or receipt sharing. Specifically, they include payments made under the Payments in Lieu of Taxes Act of 1976 by the U.S. Department of the Interior.
PERENNIAL STREAMS	Streams that flow continuously throughout most years.
PERMITTED GRAZING	Use of a National Forest range allotment under the terms of a grazing permit.
PERSON-AT-ONE-TIME	A recreation capacity measurement term indicating the number of people that can use a facility or area at one time.
PERSON YEAR (WORK YEAR)	A person year equals 2,087 hours of work time. A person year may be one person working yearlong or several persons filling seasonal positions.
PESTICIDE	Pesticide is defined as: 1) any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any pest; or 2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.
PESTS	Plants, animals, and environmental stresses which the land manager determines are detrimental to achieving resource management objectives.
PLAN OF OPERATIONS	A written plan describing mining and mineral processing activities that will likely cause a significant surface disturbance. The plan is prepared by those engaged in activities, such as prospecting, exploration or mining, in the National Forest. This plan must be approved by a Forest Officer.
PLANNING AREA	The area of the National Forest System covered by a Regional or Forest Plan.

PLANNING CRITERIA	Standards, tests, rules, and guidelines by which the planning process is conducted and upon which judgments and decisions are based.
PLANNING HORIZON	The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions. In the National Forest planning process, this is 150 years.
PLANNING PERIOD	A time interval for which inputs and outputs are identified in a planning process. Current RPA and National Forest Plan intervals are 5 and 10 years, respectively.
PLANNING RECORDS	Documents and files that contain detailed information and decisions made in developing the Forest Plan. Available at the Forest Supervisor's Office.
PNV	See Present Net Value.
POLETIMBER TREES	Live trees of commercial species at least five inches in diameter at breast height but smaller than sawtimber size, and of good form and vigor.
POLICY	A guiding principle upon which is based a specific decision or set of decisions.
POTENTIALLY (TENTATIVELY) SUITABLE LAND	Forest land (as defined in CFR 219.3) for which technology is available that ensures timber production without irreversible resource damage to soils, productivity, or watershed conditions; for which there is reasonable assurance that such lands can be restocked (CFR 219.14); and which is available for timber management.
PRACTICE	See Management Practice.
PRECOMMERCIAL THINNING	The selective felling, deadening, or removal of trees in a young stand primarily to accelerate diameter increment on the remaining stems, maintain a specific stocking or stand density range, and improve the vigor and quality of the trees that remain.
PREDATOR	One that preys, destroys, or devours - usually an animal that lives by preying on other animals.
PREPARATORY CUT	Removal of trees near the end of a rotation so as to permanently open the canopy and enlarge the crowns of seed bearers, with a view to improving conditions for seed production and natural generation, as typically in shelterwood systems.
PRESCRIBED BURNING	The intentional application of fire to wildland fuels in either their natural or modified state under such conditions as allow the fire to be confined to a predetermined area and at the same time to produce the intensity of heat and rate of spread required to further certain planned objectives (i.e., silviculture, wildlife management, etc.).

PRESCRIBED FIRE	A fire burning under specified conditions which will accomplish planned objectives in strict compliance with an approved plan and the conditions under which the burning takes place and the expected results are specific, predictable, and measurable.
PRESCRIPTION	See Management Prescription.
PRESENT NET VALUE (PNV)	The difference between the discounted value (benefits) of all outputs to which monetary value or established market prices are assigned and the total discounted costs of managing the planning area.
PRESENT NET WORTH	The discounted value of price times quantity less cost.
PRESERVATION (VQO)	See Visual Quality Objectives (VQO).
PRESUPPRESSION	Activities required in advance of fire occurrence to ensure effective suppression action. Includes (1) recruiting and training fire forces; (2) planning and organizing attack methods; (3) procuring and maintaining fire equipment; and (4) maintaining structural improvements necessary for the fire program.
PRICED OUTPUTS	Resource outputs that have market or assigned dollar values.
PRIMITIVE RECREATION SETTING	A classification of the recreation opportunity spectrum that characterizes an essentially unmodified natural environment of a size or remoteness that provide significant opportunity for isolation from the signs and sounds of man and a feeling of vastness of scale. Visitors have opportunity to be part of the natural environment, encounter a high degree of challenge and use a maximum of outdoor skills but have minimum opportunity for social interaction.
PRIMITIVE ROADS	Roads that came into existence with little regard for grade or drainage control, or were abandoned facilities from some prior use. They are sometimes created merely by repeated driving over an area. Such roads are rarely, if ever, maintained and then only by users. These roads are single lane, usually with native surfacing, and sometimes passable with four-wheel drive vehicles only, especially in wet weather.
PRIMITIVE SETTING	A large area (generally at least 5,000 acres) at least three miles from all roads, railroads or trails with motorized use. The area is essentially a natural environment unmodified by man.
PRODUCTION POTENTIAL	The capability of the land or water to produce life-sustaining features (forage, cover, aquatics).

PRODUCTIVITY	See Site Productivity.
PROGRAM DEVELOPMENT AND BUDGETING	The process by which activities for the Forest are proposed and funded.
PROPOSED ACTION	In terms of the National Environmental Policy Act, the project, activity, or action that a Federal agency intends to implement or undertake and which is the subject of an environmental analysis.
PRUNING	The removal of live or dead branches from standing trees.
PUBLIC ACCESS	Usually refers to a road or trail route over which a public agency claims a right-of-way available for public use.
PUBLIC INVOLVMEMENT	A Forest Service process designed to broaden the information base upon which agency decisions are made by (1) Informing the public about Forest Service activities, plans, and decisions, and (2) Encouraging public understanding about and participation in the planning processes which lead to final decision making.
PUBLIC ISSUE	A subject or question of widespread public interest identified through public participation relating to management of National Forest System lands.

R

RANGE ALLOTMENT	A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under a range allotment management plan. It is the basic land unit used to facilitate management of the range resource on National Forest System and associated lands administered by the Forest Service.
RANGE, TRANSITORY	See Transitory Range.
RANGELAND	Land on which the climax vegetation (potential natural plant community) is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing and browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain forb and shrub communities. It also includes areas seeded to native or adapted introduced species that are managed like native vegetation.
RANGER DISTRICT	Administrative subdivision of the Forest supervised by a District Ranger.
RARE II	See Roadless Area Review and Evaluation II.

REAL DOLLAR	A monetary value that compensates for inflation.
RECEIPTS	Money collected from timber stumpage, livestock grazing, campgrounds, special use permits, and oil and gas lease rentals and royalties, and returned to the federal treasury.
RECORD OF DECISION	A document separate from but associated with an environmental impact statement that publicly and officially discloses the responsible official's decision on the proposed action.
RECREATION CAPACITY	The number of people that can take advantage of a recreation opportunity at any one time without substantially diminishing the quality of the experience sought after.
RECREATION EXPERIENCE LEVEL	A concept used in recreation management to delineate the range of opportunities for satisfying basic recreation needs of people. A scale of five experience levels ranging from "primitive" to "highly developed" is planned for the National Forest System.
RECREATION INFORMATION MANAGEMENT (RIM)	The Forest Service system for recording recreation facility condition and use.
RECREATION LIVESTOCK USE	The use of an area by animals, such as horses and mules, which are used primarily in conjunction with recreation activities.
RECREATION MANAGEMENT AREA	An area of several thousand acres in which the management emphasis is on recreation and in which direction is given to establish a Recreation Area Management Plan.
RECREATION OPPORTUNITIES	The combination of recreation settings, activities, and experiences provided by the Forest.
RECREATION OPPORTUNITY GUIDE	A catalogue describing the recreation activities available on a particular Ranger District.
RECREATION OPPORTUNITY SPECTRUM (ROS)	A system for planning and managing recreation resources that recognizes recreation activity opportunities, recreation settings, and recreation experiences along a spectrum or continuum.
RECREATION PREFERENCE TYPE (RPT)	A term used to indicate the types of recreation experiences sought after by Forest users. They are overlapping portions of the total recreation preferences spectrum that the public may express demands for.

	RPT I. Orientations toward using natural, unmodified environment for the appreciation and understanding of natural phenomena; as a source of intellectual and/or physical challenges; for seeking solitude; and for esthetic stimulations.
	RPT II. Orientations toward using natural or semiprimitive environment in searching for and extraction of indigenous fish and/or game species, rocks, minerals, edible plants, etc., and for enjoyment of the physical surroundings in which such extractable objects are found.
	RPT III. Orientations toward using semiprimitive, lightly developed areas for relaxing in natural surroundings; as a source of tranquility and freedom from tension; and for esthetic stimulation.
	RPT IV. Orientation toward using moderately developed areas and surrounding environment for intentional social interaction and group learning experiences.
	RPT V. Orientations toward using highly developed areas for social interactions with many other people and for pursuits which allow for the expression of learned physical abilities.
RECREATION RESIDENCE	A house or cabin on National Forest land for seasonal recreational use that is not the primary residence of the owner.
RECREATION TYPES	Developed Recreation - The type of recreation that occurs where modifications (improvements) enhance recreation opportunities and accommodate intensive recreation activities in a defined area.
	Dispersed Recreation - That type of recreation use related to and in conjunction with roads and trails that requires few if any improvements and may occur over a wide area. Activities tend to be day-use oriented and include hunting, fishing, berrypicking, off-road vehicle use, hiking, horseback riding, picniking, camping, viewing scenery, snowmobiling, and many others.
RECREATION VISITOR DAY (RVD)	One visitor day equals 12 hours (one person for 12 hours, or 12 people for 1 hour, or any combination thereof).
REDUCED SERVICE MANAGEMENT	The administration, operation and maintenance of developed recreation sites to established standards with the objective to meet minimum health and safety needs of the visitor and keep the site open to public use.
REFORESTATION	The renewal of forest cover by seeding, planting, and natural means.

REGENERATION	The renewal of a tree crop, whether by natural or artificial means. This term may also refer to the crop itself.
REGIONAL FORESTER	The official responsible for administering a single Region of the Forest Service.
REGIONAL GUIDE	A document developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, that guides all natural resource management activities and established management standards and guidelines for National Forest System lands of a given Region to the Forests within a given Region. It also disaggregates the RPA objectives assigned to the Region to the Forests within that Region.
REGULATED	The commercial forest land that is organized for timber production under the principle of sustained yield. The harvest of timber from this land is regulated to achieve multiple long range objectives, such as maintaining setting for recreational activities, rotating forage production areas and wildlife habitat, increasing water production yield, and increasing the growth and utilization of timber for the Nation's supply.
REGULATIONS	Refers to the Code of Federal Regulations for implementing the National Forest Management Act, 36 CFR, Part 219.
RENEWABLE RESOURCES	Resources that are possible to use indefinitely, when the use rate does not exceed the ability to renew the supply. However, in the RPA program, the term is used to describe those matters within the scope of responsibilities and authorities of the Forest Service as required by the Forest and Rangeland Renewable Resouces Planning Act of 1974. Consequently, the renewable resources include: timber, range, minerals, wildlife and fish, water, recreation, and wilderness.
RENEWABLE RESOURCES ASSESSMENT	An appraisal of the Nation's renewable resources that recognizes their vital importance and the necessity for long-term planning and associated program development. The Assessment meets the requirements of Section 3 of the Forest and Rangeland Renewable Resources Planning Act and includes analysis of present and anticipated uses, demands, and supplies of the renewable resources; a description of Forest Service programs and responsibilities; and a discussion of policy considerations, laws, and regulations.
RENEWABLE RESOURCES PROGRAM	The program for management and administration of the National Forest Service System, for Research, for Cooperative State and Private Forest Service programs, and for conduct of other Forest Service activities in accordance with Section 4 of the Forest and Rangeland Renewable Resources Planning Act.

RESOURCE ALLOCATION MODEL	A mathematical model using linear programing which will assign prescriptions to land areas and schedule implementation of those prescriptions simultaneously. The end purpose of the model is to find a schedule and prescription assignment that meets the goals of the Forest and optimizes some objective function such as "maximize PNV".
RESOURCE ELEMENT	A collection of activities from the various operating programs required to accomplish the Forest Sevice mission and which fulfill statutory or Executive requirements. There are seven resource elements: Recreation, Wilderness, Wildlife and Fish, Range, Timber, Water, and Minerals.
RESEARCH NATURAL AREA	An area in as near a natural condition as possible, which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for scientific and educational purposes; commercial and general public use is not allowed.
RETENTION (VQO)	See Visual Quality Objectives (VQO).
RIGHT-OF-WAY	Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project facility passing over, upon, under, or through such land.
RIPARIAN AREAS	Areas with distinctive resource values and characteristics that are comprised of an aquatic ecosystem and adjacent upland areas that have direct relationships with the aquatic system. This includes floodplains, wetlands, and all areas within a horizontal distance of approximately 100 feet from the normal high water line of a stream channel, or from the shoreline of a standing body of water.
RIPARIAN ECOSYSTEM	A transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. It is identified by soil characteristics and by distinctive vegetative communities that require free or unbounded water.
ROAD CREDITS	Credits earned by timber purchasers and which are applied toward the sale price of timber in exchange for building the roads needed for access.
ROAD MAINTENANCE LEVELS	Road maintenance levels are as follows: Level 1: Basic custodial care as required to protect the road investment and to see that damage to adjacent land and resources is held to a minimum. The road is not normally open to traffic.

	Level 2: Same basic maintenance as Level 1 plus logging out, brushing out, and restoring the road prism as neccessary to provide passage. Route markers and regulation signs are in place and useable. Road is open for limited passage of traffic, which is usually administrative use, permitted use, and/or specialized traffic.
	Level 3: Road is maintained for safe and moderately convenient travel suitable for passanger cars. Road is open for public travel, but has low traffic volumes except during short periods of time (e.g., hunting season).
	Level 4: At this level, more consideration is given to the comfort of the user. Road is usually surfaced with aggregate or is paved and is open for public travel.
	Level 5: Safety and comfort are important considerations for these roads which are open to public traffic and generally receive fairly heavy use (100 Average Daily Traffic or more). Roads have an aggregate surface or are paved.
ROAD MANAGEMENT	The combination of both traffic and maintenance management operations. Traffic management is the continuous process of analyzing, controlling and regulating uses to accomplish National Forest objectives. Maintenance management is the perpetuation of the transportation facility to serve intended management objectives.
ROADED NATURAL APPEARING RECREATION SETTING	A classification on the recreation opportunity spectrum where timber harvest or other surface use practices are evident. Motorized vehicles are permitted on all or parts of the road system.
ROADLESS AREA	A National Forest area which (1) is larger than 5000 acres or, if smaller than 5000 acres, contiguous to a designated wilderness or primitive area; (2) contains no roads and (3) has been inventoried by the Forest Service for possible inclusion in the wilderness preservation system.
ROADLESS AREA REVIEW AND EVALUATION (RARE) II	A comprehensive process, instituted in June 1977, to identify roadless and undeveloped land areas in the National Forest System and to develop alternative uses for both wilderness and other resource management.
ROTATION	The planned number of years between the formation or generation of trees and their harvest at a specified stage of maturity.
ROUNDWOOD	The volume of logs or other round products required to produce lumber, plywood, woodpulp, paper, or other similar products.

RPA	See Forest and Rangeland Renewable Resources Planning Act of 1974
RURAL RECREATION SETTING	A classification on the recreation opportunity spectrum that is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high.

S

SALE SCHEDULE	See Base Sale Schedule.
SALVAGE HARVEST	The cutting of trees that are dead, dying, or deteriorating (e.g., because they are overmature or materially damaged by fire, wind, insects, fungi, or other injurious agencies) before they lose their commercial value as sawtimber.
SANITATION HARVEST	The removal of dead, damaged, or susceptible trees, essentially to prevent the spread of pests or pathogens and so promote forest hygiene.
SAWTIMBER	Trees containing at least one 12-foot sawlog or two noncontiguous 8-foot logs, and meeting regional specifications for freedom from defect. Softwood trees must be at least 9 inches in diameter and hardwood trees 11 inches in diameter at breast height.
SCENIC EASEMENT	A legal interest in the land of another which allows the easement holder specified uses or rights without actual ownership of the land; in this case, control of the use of land adjacent to public highways, parks, and rivers. It may provide something attractive to look at within the easement area, an open area to look through to see something attractive beyond the easement itself, or a screen to block out an unsightly view beyond the easement area.
SCOPING PROCESS	An early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to the proposed action. Identifying the significant environmental issues deserving of study and deemphasizing insignificant issues, narrowing the scope of the environmental impact statement accordingly. (Ref. CEQ regulations, 40 CFR 1501.7).
SEDIMENT	Solid material, both mineral and organic, that is in suspension, being transported, or has been moved from its site of origin by air, water, gravity, or ice.

SEED TREE CUTTING	The removal in one cut of most of the mature trees from an area, leaving only a small number of desirable trees to provide seed for regeneration.
SEEDLING/ SAPLING	A size category for forest stands in which trees less than 5 inches in diameter are the predominant vegetation.
SEISMIC EXPLORATION	Seismic exploration is used to map underground geological features to obtain information on the earth's subsurface and to locate areas where accumulations of oil and gas might occur. Seimic waves, generated at or near the surface, penetrate the earth's crust and reflect from subsurface rock layers back to the surface. The geophysicist receives a printed record or seismograph from which is measured the depth to various strata and from which subsurface structures with a potential for oil and gas accumulation can be determined such as faults, anticlines, and folds. *Portable* - Where access limitations, topography, or other restraints prevent use of trucks, portable operations can be performed. Two portable techniques exist for collecting data. These are: (1) Surface charge programs involve the detonation of a series of as much as 50 to 100 pounds of explosives at shot points located at intervals along the seismic line. Surface charges can be placed directly on the ground, on snow, or on a variety of stakes or platforms. All necessary equipment to conduct the operation is transported by helicopters and then conveyed by foot travel. (2) Various kinds of portable drills can be backpacked or delivered by helicopter to the area. A shallow subsurface portable program would involve drilling a pattern of approximately 16 holes about 4 inches in diameter up to 50 feet deep per mile of line. At this depth, a 10 to 40 pound charge of explosive is placed and detonated. Recording cables and geophones are laid out by foot travel. With both of these portable techniques, shock waves generated by detonation are received and transmitted via geophones and cable to a recording device. Portable methods are generally used on the Forest. *Conventional* - The conventional method of collecting seismic data includes the use of truck-mounted drills and vehicle-supported crews and generally involves off-road travel. This technique involves drilling 5 to 18 5-inch

diameter holes per mile to a depth of 180 to 200 feet. At this depth, a 10 to 100 pound explosive charge is placed and detonated. Shock waves are received and transmitted via geophones and cable to a truck-mounted recording device. Due to terrain restrictions, this method has limited application on the Forest.

Vibroseis - The vibroseis technique involves using truck-mounted hydraulic pads which generate energy waves through vibration rather than explosives. The vibrator method typically consists of four large trucks each equipped with a vibrator (a steel slab weighing about three tons) mounted between the front and back wheels. The vibrator pads (about 4 feet square) are lowered to the ground and vibrators on all trucks are triggered electronically from the recorder truck. Energy waves are received and transmitted via cable and geophones to a recorder truck. After the information is recorded, the trucks move forward a short distance and the process is repeated. The vibroseis operation is usually limited to roads and gentle terrain.

SELECTION CUTTING	The annual or periodic removal of trees as part of a silvicultural system. Cutting can involve individual trees or small groups of trees to meet a predetermined goal of size and species composition in the remaining stand.
SEMI-PRIMITIVE RECREATION SETTING	A classification on the recreation opportunity spectrum that characterizes a predominately natural or natural appearing environment of a moderate to large size. Concentration of users is low, but there is often evidence of other area users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but are subtle.
SENSITIVE SPECIES	Those plant or animal species which are susceptible or vulnerable to activity impacts or habitat alterations.
SEQUENTIAL BOUNDS	A set of constraints used in linear program models to establish the relationship of the quantity of an output to preceding and succeeding quantities of that output (e.g., the forage production in one time period cannot increase or decrease over ten percent from the forage production of the previous time period).
SERAL	A biotic community which is developmental; a transitory stage in an ecologic succession.
SHELTERWOOD CUTTING	The removal of a stand of trees through a series of cuttings designed to establish a new crop with seed and protection provided by a portion of the stand.

SILVICULTURAL EXAMINATION	The process used to gather the detailed in-place field data needed to determine management opportunities and direction for the timber resource within a small subdivision of a forest area such as a stand.
SILVICULTURAL PREVENTION OR SUPPRESSION	Prevention or reduction of pest damage by tree or stand manipulations, including genetic improvement.
SILVICULTURAL SYSTEMS	A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. It includes all cultural management practices performed during the life of the stand such as regeneration cutting, fertilization thinning, improvement cutting, and use of genetically improved tree seeds and seedlings to achieve multiple resource benefits. Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of Forest they produce.
SITE PREPARATION	A general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.
SITE PRODUCTIVITY	Production capability of specific areas of land.
SLASH	The residue left on the ground after felling and other silvicultural operations and/or accumulating there as a result of storm, fire, girdling, or poisoning of trees.
SMALL GAME	Birds and small mammals normally hunted or trapped.
SNAG	A standing dead tree usually greater than 5 feet in height and 6 inches in diameter at breast height.
SOCIAL DIVERSITY	The variety of choices people have in shaping current and future activities in their environment.
SOCIAL ORGANIZATION	The structure of a society described in terms of institutions, community cohesion, and community stability.
SOCIAL STABILITY	The degree of control people have in protecting the cultural strength within their environment and managing changes affecting their future activities.
SOCIAL VARIABLE	A variable that measures the social impact of Forest Service management alternatives. Examples include population statistics, types of institutions, and personal opinion as reflected in attitudes or as demonstrated by behavior.
SOFT SNAG	A standing dead tree from which the leaves and most of the branches have fallen and which has started to rot internally.

SOIL PRODUCTIVITY	The capacity of a soil to produce a specific crop such as fiber and forage, under defined levels of management. It is generally dependent on available soil moisture and nutrients and length of growing season.
SPECIAL-USE PERMIT	A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest land for some special purpose.
STAGNATION	A condition where plant growth is markedly reduced or even arrested through, e.g., competition, state of the soil, or disease.
STAND	A community of trees or other vegetative growth occupying a specific area and sufficiently uniform in composition (species), age, spatial arrangement, and condition as to be distinguishable from the other growth on adjoining lands, so forming a silvicultural or management entity.
STANDARD AND GUIDELINE	An indication or outline of policy or conduct.
STIPULATIONS	Requirements that are part of the terms of a mineral lease. Some stipulations are standard on all Federal leases. Other stipulations may be applied to the lease at the discretion of the surface management agency to protect valuable surface resources and uses.
STOCKING	A measure of timber stand density as it relates to the optimum or desired density to achieve a given management objective.
STREAM ORDER	A measure of the position of a stream in the hierarchy of tributaries. (Stream as referenced here refers to perennial streams.) a. First-order streams are unbranched streams, that is they have no tributaries. b. Second-order streams are formed by the confluence of two or more first-order streams. They are considered second-order until they join another second-order or larger stream. c. Third-order streams are formed by the confluence of two or more second-order streams. They are considered third-order until they join another third-order or larger stream.
SUBDIVISIONS	Areas of previously undeveloped land divided into individual homesites and/or blocks of lots with streets or roads and open spaces.

SUCCESSIONAL STAGE	A phase in the gradual supplanting of one community of plants by another.
SUITABILITY	The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.
SUITABILITY ANALYSIS	Process of identifying National Forest lands to be managed for timber production. Stage I identifies the biologically capable, administratively available, and technically suitable lands. Stage II consists of an economic analysis of costs and benefits of timber management on the lands identified in Stage 1. Stage III provides the final assignment of suitable lands based on Forest objectives and economic efficiency.
SUITABLE FOREST LAND	Forest land (as defined in CFR 219.3) for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions; for which there is reasonable assurance that such lands can be adequately restocked (as provided in CFR 219.14); and for which there is management direction that indicates that timber production is an appropriate use of that area.
SUPPLY	The amount of an output that producers are willing to provide at a specific price, time period, and conditions of sale.
SUPPORT ELEMENT	A collection of major Forest Service activities which complement the resource elements. There are five support elements: Protection, Lands, Soils, Facilities and Rural Community and Human Resources.
SUPPRESSION (FIRE SUPPRESSION)	Any act taken to slow, stop, or extinguish a fire. Examples of suppression activities include fireline construction, backfiring, and application of water or chemical fire retardants.
SYSTEM ROADS	See Forest System Road.

T

TARGET	A quantifiable output assigned to the Forest.

TEMPORARY ROAD	Those roads needed only for the purchaser or permittee's use. The Forest Service and the purchaser or permittee must agree to the location and clearing widths. Temporary roads are used for a single, short-term use, e.g., to haul timber from landings to Forest development roads, access to build water developments, etc.
THERMAL COVER	Cover used by animals to ameliorate chilling effects of weather; for elk, a stand of coniferous trees 40 feet or taller with an average crown closure of 70 percent or more.
THREATENED AND ENDANGERED SPECIES	Any species, plant or animal, which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Threatened species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act.
THREE-STEP SHELTERWOOD	An even-aged silvicultural system in which the old crop (the shelterwood) is removed in three successive cuttings in order to provide a source of seed and/or protection for regeneration.
TIERING	Refers to the elimination of repetitive discussions of the same issue by incorporating by reference the general discussion in an environmental impact statement of broader scope. For example, a project environmental assessment could be tiered to the Forest Plan EIS.
TIMBER	A general term for the major woody growth of vegetation in a forest area.
TIMBER BASE	The lands within the Forest that are suitable for timber production.
TIMBER PRODUCTION	The purposeful growing, tending, harvesting, and regeneration of rotational crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. For purposes of Forest planning, timber production does not include production of fuelwood or harvest from unsuitable lands.
TIMBER STAND IMPROVEMENT (TSI)	All noncommercial intermediate cuttings and other treatments to improve composition, condition, and volume growth of a timber stand.
TRAILHEAD	The parking, signing, and other facilities available at the terminus of a trail.
TRANSITORY RANGE	Land that is suitable for grazing use for a period of time. For example, on particular disturbed lands, grass may cover the area for a period of time before being replaced by trees or shrubs not suitable for forage.

TREE OPENING	Any opening in the Forest cover created by the application of even aged silvicultural practices. The Northern Regional Guide established size limitations and guidelines to determine when cut acres are no longer considered openings.
TRESPASS	The act of going on another's land or property unlawfully.
TWO-STEP SHELTERWOOD	An even-aged silvicultural system in which the old crop (shelterwood) is removed in two successive cuttings in order to provide a source of seed and/or protection for regeneration.

U

UNDERSTORY	The trees and other woody species which grow under a more or less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.
UNEVEN-AGED MANAGEMENT	The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection. Individual Tree Selection Cutting - The removal of selected trees from specified size and age classes over the entire stand area in order to meet a predetermined goal of size or age distribution and species composition in the remaining stand. Group Selection Cutting - The removal of small groups of trees to meet a predetermined goal of size distribution and species in the remaining stand.
UNREGULATED HARVEST	This harvest is not charged against the allowable sale quantity. It includes occasional volumes removed that were not recognized in calculations of the allowable sale quantity, such as cull or dead material and noncommercial species and products. It also includes all volume removed from unsuitable areas. Harvests from unsuitable areas will be programmed as needed to meet multiple use objectives other than timber production and for improvement of administrative sites.

UNSUITABLE TIMBER LAND	Lands not selected for timber production in Step II and III of the suitability analysis during the development of the Forest Plan due to (1) the multiple-use objectives for the alternative preclude timber production, (2) other management objectives for the alternative limit timber production activities to the point where management requirements set forth in 36 CFR 219.27 cannot be met and (3) the lands are not cost-efficient over the planning horizon in meeting forest objectives that include timber production. Land not appropriate for timber production shall be designated as unsuitable in the Forest Plan.
UTILITY CORRIDOR	See Corridor.
UTILIZATION STANDARDS	Standards guiding the use and removal of timber. They are measured in terms of diameter at breast height (d.b.h.) and top of the tree inside the bark (top d.i.b.) and the percentages of "soundness" of the wood.

V

VALUE, MARKET	The unit price of an output normally exchanged in a market after at least one stage of production, expressed in terms of what people are willing to pay as evidenced by market transactions.
VALUE, NONMARKET	The unit price of an output not normally exchanged in a market after at least one stage before consumption, and thus must be imputed from other economic information.
VARIETY CLASS	A classification system for establishing three visual landscape categories according to the relative importance of the visual features. This classification system is based on the premise that all landscapes have some visual values, but those with the most variety or diversity of visual features have the greatest potential for being or attaining high scenic value.
VEGETATION TREATMENT	Any activities undertaken to modify the existing condition of the vegetation.
VIABLE POPULATION	A population which has adequate numbers and dispersion of reproductive individuals to ensure the continued existence of the species population in the planning area.
VISITOR INFORMATION SERVICE (VIS) SITE	A site which provides interpretative information, (directional, historical, statistical) located at Forest historical sites, overlook sites, or special interest areas.

VISUAL QUALITY OBJECTIVE (VQO)	A desired level of scenic quality and diversity of natural features based on physical and sociological characteristics of an area. Refers to the degree of acceptable alterations of the characteristic landscape. Preservation: In general, human activities are not detectable to the visitor. Retention: Human activities are not evident to the casual Forest visitor. Partial Retention: Human activities may be evident, but must remain subordinate to the characteristic landscape. Modification: Human activity may dominate the characteristic landscape but must, at the same time, utilize naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in middle-ground or background. Maximum Modification: Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background. Enhancement: A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.
VISUAL RESOURCE	The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

W

WALLOW	A depression, pool of water, or wet area produced or utilized by elk or moose during the breeding season.
WATER YIELD	The measured output of the Forest's streams.
WATER YIELD INCREASE	Additional water released to the Forest streams as a result of Forest management activities.
WEEDING	Generally a cultural operation eliminating or suppressing undisturbed vegetation, mainly herbaceous, during the seedling stage of a forest crop, thus reducing competition with the seedling stand.

WET AREAS	Sites, often occurring at the heads of drainages, such as wet sedge meadows, bogs, or seeps. They are often referred to as "moist sites" and are very important components of elk summer range. Sites near water are important because the forage they produce is highly nutritious and heavily utilized by elk.
WETLANDS	Those areas that are inundated by surface or ground water with a frequency sufficient, under normal circumstances, to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands include marshes, bogs, sloughs, potholes, river overflows, mud flats, wet meadows, seeps, and springs.
WILDERNESS	Federal land retaining its primeval character and influence without permanent improvements or human habitation as defined under the 1964 Wilderness Act. It is protected and managed so as to preserve its natural conditions which (1) generally appear to have been affected primarily by forces of nature with the imprint of man's activity substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and confined type of recreation; (3) has at least 5,000 acres or is of sufficient size to make practical its preservation, enjoyment, and use in an unimpaired condition, and (4) may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.
WILDERNESS STUDY	An analysis to determine an area's appropriateness, cost, and benefits for addition to the National Wilderness Preservation System.
WILLINGNESS TO PAY VALUE	The value that represents the amount a user of a good or service would be willing to pay rather than to go without it. Indications of willingness to pay may be obtained by direct questionnaires or indirectly by studies of payments for similar items in similar circumstances, or of related costs, such as transportation paid to get to point of use.
WITHDRAWAL	An order removing specific land areas from availability for certain uses.
WORK YEAR EQUIVALENT	This is 2,087 working hours. May be accomplished by one person working yearlong or several people filling seasonal positions.

Y

YARDING	The operation of hauling timber from the stump to a collecting point.

Z

ZONE OF INFLUENCE	A delineated geographic area within which the present and proposed actions exert an important influence on residents and visitors.

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APPENDIX C-1

LAND CLASSIFICATION SUMMARY

Classification		Acres 1/
1. Non-Forest land (includes water)		37,966
2. Forest land		2,045,226
3. Forest land withdrawn from timber production		391,625
4. Forest land not capable of producing crops of industrial wood		218,764
5. Forest land physically unsuitable: - irreversible damage likely to occur - not restockable within 5 years		7,742
6. Forest land--inadequate information 1/		-0-
7. Tentatively suitable forest land (item 2 minus 3, 4, 5, and 6)		1,427,095
8. Forest land not appropriate for timber production		188,391
- Administrative, recreation and historic sites	5,106	
- Concentrated public use	17,235	
- Wildlife (elk winter range & grizzly habitat)	30,885	
- Roadless	74,224	
- Not economically feasible	60,941	
9. Unsuitable forest land (items 3, 4, 5, 6, and 8)		806,522
10. Total suitable forest land (item 2 minus item 9)		1,238,704
11. Total National Forest land 1/ (items 1 and 2)		2,083,192

1/ Excludes Harvey Creek area, 29,045 acres, administered by the Deerlodge National Forest.

2/ Lands for which current information is inadequate to project responses to timber management. Usually applies to low site lands.

APPENDIX C-2

TIMBER PRODUCTIVITY CLASSIFICATION

Potential Growth 1/ (cubic feet/acre/year)	Suitable Lands (acres)	Unsuitable Lands (acres)
Less than 20	-0-	321,049 2/&3/
20-49	19,329	33,795
50-84	738,646	474,763
85-119	500,058	14,881
120-164		
165-224		
225+		

1/ Potential growth is based upon Pfister, et al. average productivity for habitat types rather than empirical Forest yield tables.

2/ Productivity for some lands such as wilderness areas is estimated as data is not available.

3/ Includes the acres of lakes and grasslands.

APPENDIX C-3

VEGETATION MANAGEMANT PRACTICES

A. Silvicultural Practices

A silvicultural examination and prescription will be completed for all timber lands where vegetative management practices occur. All silvicultural prescriptions will be prepared and/or reviewed and approved by a certified silviculturist. The decision for vegetative management practices (silvicultural systems) is based upon on-the-ground analysis by certified silviculturists using the guidance in this appendix and through thorough review of pertinent scientific and technical literature and practical experience. Pertinent literature will be evaluated along with local data, i.e., Lolo Snag Retention Guidelines, Lolo Scarification Guides, Lolo Regeneration Risk Assessment and Stocking Guidelines, and professional experience in order to select the most appropriate treatment. Silvicultural prescriptions consider site specific factors such as physical site, soils, climate, habitat type, and current vegetative composition and conditions in order to set detailed guidance for vegetative management projects.

The silvicultural prescription process is a concurrent activity with the interdisciplinary team process in preparing projects. Prescriptions are formulated within the Forest Plan guidance to achieve specific objectives of management areas. The full range of silvicultural systems (individual tree selection to clearcut) are available for use on the Lolo National Forest. The selected vegetative management practices for individual sites will comply with management requirements listed in 36 CFR 219.27(b). Where clearcutting is the vegetative management practice selected, it will have been determined that it is the optimal system.

B. Habitat Type Guidelines

These guidelines are supplemental to the Northern Region Guides and are applicable to all management areas described in the Forest Plan. They are organized by Habitat Groups which correspond to those used in the Forest Plan. The rationale for implementing various vegetative management practices is also included. These guidelines are to be used as a basis for identifying project-specific vegetative management practices on the Lolo National Forest. Specific Management Area direction may influence the silvicultural systems appropriate for use; however, stand-specific prescriptions supported by an environmental analysis may also prescribe other treatments.

HABITAT GROUP 1 - WARM AND DRY

Pipo/Agsp
Pipo/Syal
Psme/Agsp
Psme/Feid

Psme/Fesc
Psme/Syal-Agsp
Psme/Caru-Agsp

These sites are characterized by open-grown stands of ponderosa pine or Douglas-fir with a bunchgrass understory. In many areas these stands are now developing pure or nearly pure understories of Douglas-fir due to the exclusion of fire for the past 70 years. As most of these sites occur at low elevations on south and westerly aspects with shallow and rocky soils, the overall site productivity is low and has restockability problems and generally slow growth.

1. Timber

Tree stocking and soil moisture are limiting factors on these sites. Commercial timber production is feasible on theses sites with production of up to 30 cubic feet per acre per year. Since moisture is a limiting factor on these sites silvicultural systems will include individual tree selection, group selection, and shelterwood regeneration systems in order to maintain shading of regeneration. Clearcutting would only be a viable option where site factors indicate a high probability of achieving regeneration.

2. Site Preparation

Site preparation levels are dependent upon the type of regeneration activity prescribed. Scarification requirements should follow the Lolo National Forest Scarification Guidelines, July 1985. These sites are considered highly competitive, primarily due to moisture stress.

3. Reforestation

Minimum acceptable tree stocking for certification will be identified in the silvicultural prescription, with ponderosa pine being the preferred species.

4. Protection

These sites currently have dense understories of Douglas-fir which are overstocked and growing very slowly. This condition is conducive to spruce budworm epidemics, root disease spread, bark beetle infestation, and the spread of dwarf mistletoe. Wildfire can be very destructive in some of these stands. Prescribed light burning of the understory to maintain open stands with mixtures of species, age class distributions, and stocking control is an acceptable integrated pest management measure.

5. Wildlife

These sites are used extensively by big game for winter range and by some grass/forb dependent wildlife species all year long.

6. Range

This habitat group provides excellent domestic livestock forage.

7. Soil/Water

Soil and water resources are discussed at length in the Lolo National Forest Land Systems Inventory.

HABITAT GROUP 2 - MODERATELY WARM AND DRY

Psme/Vaca
Psme/Phma
Psme/Phma-Phma
Psme/Phma-Caru
Psme/Syal
Psme/Syal-Caru
Psme/Syal-Syal
Psme/Caru-Aruv
Psme/Caru-Pipo
Psme/Spbe

These habitat types are normally located on lower elevations but as aspects change to more southerly and westerly they can be found at higher elevations. These stands typically have mixed overstories of ponderosa and Douglas-fir with dense patches of Douglas-fir understory. With increases in elevation, the proportion of ponderosa pine diminishes. The understory may also have dense layers of shrubs, especially ninebark. Areas not having a dense shrub or fir understory usually have a dense component of pinegrass.

1. Timber

These habitat types are capable of moderate timber production at an estimated 65 cubic feet per acre per year under intensive management. Shelterwood harvesting will be the major treatment due to the need to provide partial shade for regeneration. Group selection is also acceptable where logging systems allow for efficient removal of the trees and treatment of slash. On steep ground requiring cable yarding systems group selection would generally not be used. Small patch clearcutting (2 to 10 acres) may be utilized where the site indicates a reasonable success for regeneration. Individual tree selection generally will not be employed due to a need to maintain ponderosa pine as the seral species and the high costs of employing such a system. Individual tree selection may be appropriate in special situations where protection of special features, species diversity, or slash treatment requires such a treatment.

2. Site Preparation

Scarification requirements for these sites should follow the Lolo National Forest Scarification Guidelines, July 1985. These sites are considered high to moderate in competitiveness for conifer regeneration.

3. Reforestation

Minimum acceptable stocking is 200 trees per acre on 80 percent of the harvested area. This minimum may be adjusted by individual stand prescriptions which reflect site specific conditions. Preferred species composition is ponderosa pine or Douglas-fir on the drier sites and western larch on the more moist sites. Although natural regeneration may, at times, be difficult to achieve and slow to establish, it may still be the least costly method of reforestation. Big-game browsing may be a factor in successful stand establishment.

4. Protection

The overstocking in the Douglas-fir understories over much of the area presents a high risk situation for spruce budworm epidemics. These conditions are also conducive to root diseases, dwarf mistletoe, bark beetles, and large destructive wildfires. Integrated pest management strategies should stress species diversity, age class distribution, and stocking control.

5. Fire

Periodic understory burning will provide for a more desirable mix of ponderosa and Douglas-fir and will help alleviate the overstocking of the Douglas-fir understories. Vegetative recovery is rapid after a fire disturbance. The potential exists for intense wildfires due to present stand conditions and fuel accumulations.

6. Wildlife

These habitat types are primary big-game winter ranges with high browse production potentials.

7. Range

These habitat types offer a moderate level of forage production for domestic livestock.

8. Soil/Water

Soil and water conditions are discussed at length in the Lolo National Forest Land Systems Inventory.

HABITAT GROUP 3 - MODERATELY COOL AND DRY

Psme/Vagl
Psme/Vagl-Vagl
Psme/Vagl-Aruv
Psme/Libo-Caru
Psme/Caru-/caru
Psme/Cage
Psme/Juoc
Psme/Arco

These habitat types are characterized by mixed species stands of ponderosa pine, western larch, lodgepole pine, and Douglas-fir. Understories are composed primarily of dense Douglas-fir thickets but may have a more mixed composition in some stands.

1. Timber

Habitat types within this group have the potential to produce approximately 70 cubic feet per acre per year under intensive management. Shelterwood regeneration systems will be the dominant treatment. Group selection may be used on areas where logging systems can operate efficiently and where tree species will allow. Individual tree selection generally will not be used unless needed to protect site features. Clearcutting may be used in small patches where there is a high probability of achieving regeneration. Site specific information will be utilized to determine the precise treatments.

2. Site Preparation

Site preparation will generally be conducted according to the Lolo National Forest Scarification Guidelines, July 1985. These sites are considered moderate to highly competitive to the establishment of coniferous regeneration. Site specific prescriptions may vary from these Guidelines.

3. Reforestation

Minimum acceptable conifer tree stocking is 200 trees per acre over 80 percent of the harvested area unless a site specific prescription varies these levels. Preferred species for these sites are ponderosa pine, western larch, lodgepole pine, and Douglas-fir. Moisture stress will be a factor in reforestation so shade or reduction of competing vegetation is needed. Big-game use may be a problem with stand establishment.

4. Protection

These stands are high risk to spruce budworm, root diseases, and dwarf mistletoe due to the present stand structures of dense understories with existing Douglas-fir overstory components. Integrated pest management strategies should include utilizing species mixtures, age class diversity between stands, and stocking control.

5. Fire

Due to current structure many of these stands are not suitable for underburning. However, once the stand structure is converted to a suitable condition, underburning is a viable management prescription. Wildfires will result in moderately intense fires which will generally replace most of the understory, and at times the entire stand.

6. Wildlife

These habitat types are used as winter range with some big game using these sites all year.

7. Range

Forage production is moderate for domestic livestock.

8. Soil/Water

Soil and water conditions for these habitat types are discussed at length in the Lolo National Forest Land System Inventory.

HABITAT GROUP 4 - MODERATELY COOL AND MOIST

Abgr/Clun
Tshe/Clun
Pien/Gatr
Abla/Clun
Abla/Libo
Tsme/Mefe
Abla/Opho
Abgr/Xete
Thpl/Clun
Pien/Vaca
Pien Libo
Abla/Gatr
Abla/Mefe
Thpl/Opho
Abla/Caca
Psme/Libo

Abgr/Libo
Psme/Libo-Syal
Psme/Libo-Vagl

These habitat types are characterized by single-storied overstories with sparse to very dense understories of tolerant species. Mixed stands are composed of Douglas-fir, ponderosa pine, western larch, lodgepole pine, western white pine, western redcedar, grand fir, subalpine fir, hemlock, and spruce.

1. Timber

Timber productivity on these habitat types will be approximately 95 to 110 cubic feet per acre per year under intensive management.· Clearcutting, shelterwood, and seedtree harvesting will be the primary regeneration systems. With the high productivity there are generally high accumulations of slash and natural fuels which can preclude regeneration if not treated. In many instances the lack of suitable seed trees or the accumulation of slash will preclude the leaving/managing of seed or shelterwood trees. In these cases clearcutting will be utilized. Group selection may be utilized where logging systems and slash treatments are efficient methods that still allow for adequate regeneration to occur. Individual tree selection generally will not be utilized except to meet visual or watershed requirements.

2. Site Preparation

Site preparation will generally be conducted utilizing the Lolo National Forest Scarification Guidelines. These sites are considered to be low to moderately competitive for conifer establishment. Individual stand prescriptions may require treatments other than those listed in the Guidelines.

3. Reforestation

Preferred species include western larch, Douglas-fir, ponderosa pine, western white pine, lodgepole pine, Englemann spruce, and to a lesser degree, grand fir, subalpine fir, and western red cedar. Minimum acceptable coniferous tree stocking is 300 trees per acre over 80 percent of the area unless a prescription varies this level for site specific reasons.

4. Protection

These habitat types are low risk for spruce budworm. Dwarf mistletoe is present in many stands in Douglas-fir, lodgepole pine, and western larch. Root diseases are present in the Douglas-fir and grand fir habitat types. Mountain pine beetle epidemics may develop or expand through these habitat types that are supporting pure or nearly pure stands of susceptible lodgepole pine. Integrated pest management practices should consider emphasizing mixed species management, age class distribution between stands, and managing lodgepole pine to prevent mountain pine beetle outbreaks.

5. Fire

Wildfires are usually stand replacement type fires. Prescribed fires will be used for fuels treatment and site preparation activities after timber harvest. Underburning will not generally be prescribed.

6. Wildlife

These habitat types are generally used by big game for summer range.

7. Range

Transitory range is the primary benefit for domestic livestock.

8. Soil/Water

Soil and water conditions are discussed at length in the Lolo National Forest Lands System Inventory.

HABITAT GROUP 5 - COOL AND MODERATELY DRY

Abla/Vaca
Abla/Libo-vasc
Abla/Xete
Tsme/Xete
Abla/Vagl
Abla/Vasc-Caru
Pico/Vaca

These habitat types are characterized by pure stands of lodgepole pine or lodgepole with minor amounts of Douglas-fir, western larch, and Englemann spruce. Understories of trees are usually very sparse due to dense stands of beargrass or Vaccinium. Large expanses of the lodgepole pine stands have succumbed to the mountain pine beetle epidemic on the northern portion of the Lolo National Forest. The potential exists for continuation of this epidemic.

1. Timber

Lodgepole pine is the principal species in this habitat group. Potential timber production will average approximately 55 cubic feet per acre per year under intensive management. Stands are typically even aged with little understory development. Clearcutting is the primary regeneration method due to stand structure, composition, and age. Seedtree or shelterwood harvesting will be utilized where suitable species composition and fuel situations will allow for management of the residual trees. Group selection will generally not be prescribed where a change in species composition is desirable for future management. Individual tree selection will not be prescribed except where needed for the protection of other resources or features.

2. Site Preparation

Site preparation requirements will be accomplished utilizing the Lolo National Forest Scarification Guidelines. These habitat types are in the moderate range for competition to conifer regeneration. Individual stand prescriptions may vary from the Guidelines based upon specific site data.

3. Reforestation

The preferred regeneration species are lodgepole pine, Douglas-fir and western larch. Minimum stocking is 200 trees per acre on 80 percent of the harvested area unless a stand specific prescription varies this level.

4. Protection

The primary pest agent in these habitat types is the mountain pine beetle. Lodgepole pine stands with 8-inch d.b.h. or larger and more than 80 years old are in the high risk category. Integrated pest management practices should favor mixed species stands, age class distribution between stands, and early harvest of high risk lodgepole pine stands.

5. Fire

Wildfires are usually stand replacement type fires. Due to the continuity of these stands, the potential exists for very large catastrophic fires to occur. Many areas have high fuel accumulations from past beetle activity or mortality in densely stocked stands. Activities should be strategized to provide for breaking up of these large stand and fuel complexes.

6. Wildlife

These habitat types are used as summer range for big game and provide excellent escape cover for big game during the hunting seasons.

7. Range

Livestock forage production is low, but does provide transitory range.

8. Soil/Water

Soil and water conditions are discussed at length in the Lolo National Forest Land System Inventory.

HABITAT GROUP 6 - COLD AND MODERATELY DRY

Abla/Vasc
Abla/Vasc-Vasc
Abla(Pial)/Vasc

Abla/Luhi
Pial-Abla
Pial

These habitat types are above the ecological limits of Douglas-fir and western larch. Lodgepole pine, whitebark pine, and subalpine fir are the major tree species. Engelmann spruce and alpine larch may be present.

1. Timber

These habitat types are not managed for commercial timber production due to their low site potentials and physical site conditions. Tree growth is extremely slow and site disturbance may take decades to revegetate.

2. Protection

Due to the extreme cold winter environments of these sites, the mountain pine beetle populations usually stay at endemic levels in the whitebark pine. White pine blister rust is present but is usually at endemic levels.

3. Fire

Wildfires are infrequent. When a fire does develop it is usually from other areas and burns into these sites. Such fires are stand replacement fires and successful regeneration usually takes many years.

4. Wildlife

These habitat types contain mountaingoat and bighorn sheep ranges, grizzly bear habitat, and summer range for deer and elk.

5. Range

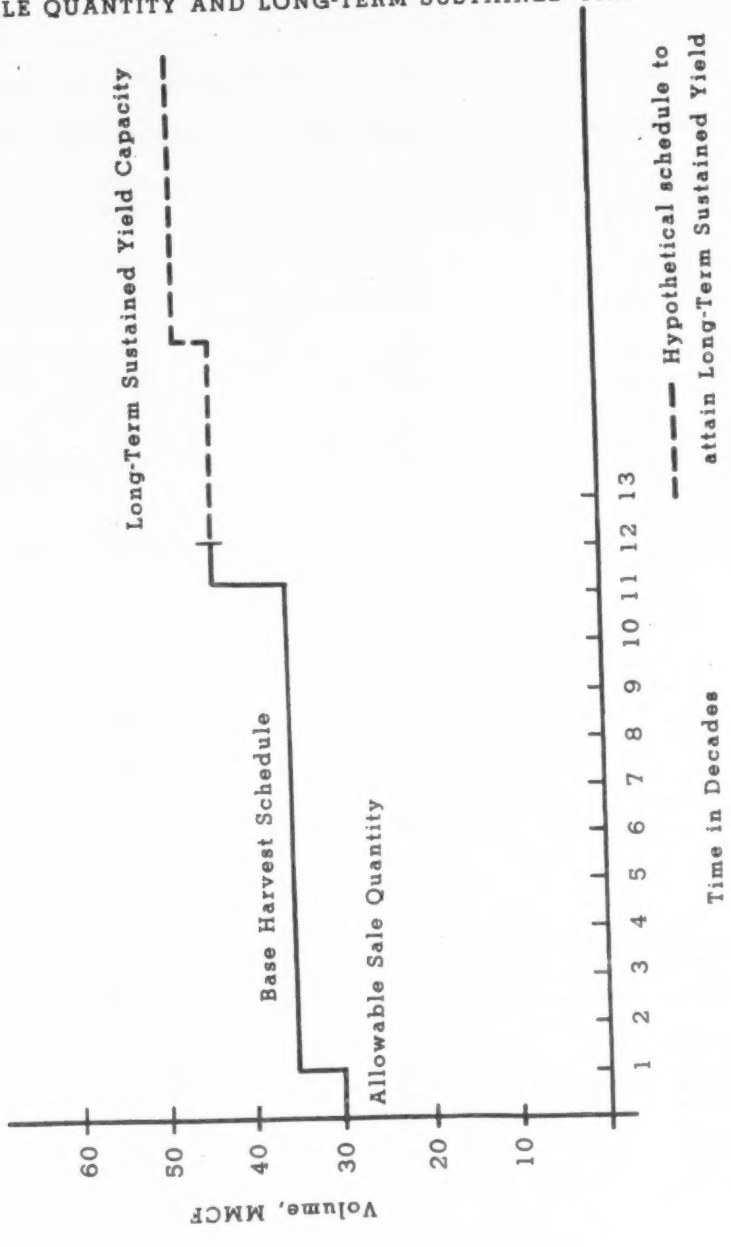
These habitat types are seldom used by domestic livestock due to access and low forage production potential.

6. Soil/Water

Soil and water conditions are discussed at length in the Lolo National Forest Land Systems Inventory.

APPENDIX C-4

ALLOWABLE SALE QUANTITY AND LONG-TERM SUSTAINED YIELD



APPENDIX C-5

PRESENT AND FUTURE FOREST CONDITIONS

	Measure	Suitable Land	Unsuitable Land
Present Forest: Growing Stock	MMCF	2,799	1,358
	MMBF	9,374	4,944
Live Cull	MMCF	373	205
	MMBF	1,268	697
Salvable Dead	MMCF	60	42
	MMBF	204	143
Annual Net Growth	MMCF	46	30
	MMBF	156	102
Annual Mortality	MMCF	11	6
	MMBF	37	20
Future Forest: 1/ Growing Stock	MMCF	1,643	
Annual Net Growth	MMCF	31	
Rotation Age	Years	85 2/	to 95

	Age Class	Present Forest (1985)	Future Forest (2035)
Age Class Distribution acres of suitable lands	0-40	174,032	402,410
	41-80	322,392	357,178
	81-120	183,590	176,580
	121-160	182,361	139,666
	161-200	180,381	85,424
	200+	195,948	67,864

1/ Future Forest Growing Stock and Annual Net Growth figures include only those acres allocated to some level of timber production and include only merchantable volumes.

2/ Average rotation age for regenerated stands on lands with timber emphasis.

APPENDIX C-6

ALLOWABLE SALE QUANTITY AND TIMBER SALE PROGRAM QUANTITY 1/
(Annual Average for First Decade)

Allowable Sale Quantity: 29.7 (MMCF) -- 107 (MMBF) 2/

Timber Sale Program Quantity 3/: 33.9 (MMCF) -- 122 (MMBF) 2/

1/ To be expressed to nearest .1 MM board and cubic feet.
2/ Based on local unit of measure.
3/ Total of allowable sale quantity and additional sales.

APPENDIX D

PLANNED BUDGET REQUIRED TO IMPLEMENT THE FOREST PLAN
(Average Annual in Thousands of Dollars for First Decade)

Funding Item	Budget Activity	1/ FY 78 Dollars (x1.47=)	2/ FY 84 Dollars
00	General Administration	1283	1886
01,02	Fire and Fuels	885	1301
03-05	Timber	1874	2755
06,07	Range	196 3/	288
08	Minerals	194	285
09	Recreation	858	1261
10	Wildlife and Fish	171	251
11	Soil, Air, Water	233	343
12	Facility Maintenance - FA&O	118	173
13-15	Real Estate Management	273	401
42,43	Land Status & Acquisition	157	231
16	Landline Location	263	387
17	Road Maintenance	874	1285
18	Trail Maintenance	108	159
19	Co-op Law Enforcement	29	43
20	Reforestation - Appropriated	239	351
21	TSI - Appropriated	68	100
23	Tree Improvement	50	73
24	Purchaser Election (Perm. Fund)	434	638
26-28	KV (Trust Fund)	2153	3165
29	CWFS-Other (Trust Fund)	82	121
30	Timber Salv.Sales (Perm. Fund)	127	187
31	Brush Disposal (Perm. Fund)	1223	1798
32	Range Improvement	10	15
33	Recreation Construction	27	40
34	Facility Construction - FA&O	70	103
35	Engineering Construction Support	1888	2775
36	Const.- Capital Investment Roads	3326	4889
37	Trail Construction/Reconstruction	210	309
38	Timber Purchaser Road Construction	2242	3296
	Total	19,665 4/	28,908

1/ FY 78 is the base year for costs used in Forest planning.

2/ In recent years, the Lolo has experienced declining budgets. In FY 84, the Forest received $17,799,000. Budget decreases were the result of the depressed timber market and the overall reduction in Federal budgets set by Congress and the Administration and affecting all activities. The Forest sold approximately 50 percent of the planned timber program in FY 84 which is reflected by a budget that is approximately $9.2 million less than that needed to sell 100 percent of the planned timber outputs.

3/ Includes $157 for noxious weeds.

4/ $ 51 less than EIS due to excluding the cost of the older American program

APPENDIX E

10-YEAR TIMBER SALE PROGRAM

The following is a sale program intended to display the proposed timber sales to be offered to the public during the next 10 years. Listed by fiscal year are those sales the Forest intends to offer to meet the regulated sale target. There is a listing of the proposed volume to be offered in the unregulated category which is in addition to that volume listed for the regulated component. The sale program for years 8, 9, and 10 has been established by capability areas, management areas, and Ranger Districts. Actual sale areas names and volumes have not been designated. In addition to these, the Forest plans to continue to issue permits for firewood gathering. This, somewhat like the unregulated volume, is dependent upon demand and available supply. The Forest expects to permit approximately 30 MMBF of firewood per year. Additional volume will be removed in future years if the present trend in home heating continues. The timber sale program is a plan based on current conditions and information available at this time. The timber sale program may be modified during the implementation of the Forest Plan if conditions change or new information becomes available. The degree of the modification will determine whether or not the Forest Plan will need to be amended.

Each year there is a formal process the Forest goes through to review the sale program and add the next year's sales. The process is displayed below and is subject to improvement changes.

10-Year Timber Sale Program

(With Forest Plan Interfacing Displayed in Bold Type)

Timeframe Mo. & Wk.	Activity
Dec. 1-4	Ranger District identifies timber projects to meet harvest outputs.
	Seventh-year sales have feasibility analysis prepared.
	Existing program sales reviewed and updated as needed.
	Feasibility analysis prepared using an interdisciplinary team and includes the following: 1. Economical analysis 2. Time schedule of major activities 3. Topographic map (2.64 inches = 1 mile) showing vicinity of proposed sale. Additional detail if known.

(Continued)

Timeframe Mo. & Wk.	Activity
Jan. 1	INTERFACE WITH ID TEAM WHERE A TIMBER SALE IS NOT FEASIBLE IN A PROGRAMED MANAGEMENT AREA. THIS STEP IS NEEDED ONLY IF A PROBLEM OCCURS.
Jan. 2	Ranger District sends draft program to the Forest Supervisor for staff review.
	DURING THE 3-WEEK REVIEW TIME, THE ID TEAM COMPARES THE PROPOSAL TO THE FOREST PLAN.
Feb. 1	Forest Supervisor returns the program to the Ranger Districts with staff comments.
Feb. 3	Ranger District-Supervisor's Office meeting is held to resolve identified conflicts and agree on program.
March 1	Ranger District finalizes program and sends in both copies for approval.
March 2	ID TEAM MAKES FINAL COMPARISON OF EFFECTS OF THE FINAL TIMBER SALE PROGRAM.
March 2	Supervisor's Office returns original copy of approved program to the Ranger District.
March 3	Ranger District revises the sale status file as needed.

Cost share cooperator annual meetings will be held to allow any changes to be incorporated into the final sale program.

The timber sale feasibility analysis procedure is available upon request.

Once each proposed timber sale has been evaluated using the Lolo National Forest Timber Sale Feasibility Analysis form, those sales determined to be environmentally and economically viable will be further evaluated. Each sale will be grouped into categories according to its relative soundness.

This display of data allows the Forest to show the volume possible to be offered if the associated funding is available. It also allows the Forest to schedule the prework needed prior to the individual sale date and the associated costs. The viability of an individual sale, once it passes successfully through the feasibility analysis process, is then dependent upon the timely obtainment of the prework funding, personnel ceilings, FR&T funds for either contributed funding or preroading, and excess costs payable to share cost cooperators. The prework funding includes all aspects of the preparation tasks needed to fully prepare a timber sale to the point of advertisement.

This will allow the Forest to display the impact on timber outputs if any one or more of the dependent items are not forthcoming or are delayed.

Table 1 displays the Lolo National Forest Timber Sales Program.

APPENDIX E

Table 1

10-Year Timber Sale Program

TIMBER SALE SCHEDULE, FISCAL YEAR 86

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads		Harvest Method
				Const	Reconst	
MISSOULA RANGER DISTRICT						
Kitchen Gillespie T11N, R15W s. 30,32 T10N, R15W s. 4,5,8 T11N, R16W s. 17,20, 21,22,23,24,26,27, 28,34,35	16	441	3,917	6.2	13.6	CC-ST, SW, Intermed., OR
	18	32	391			
	19	56	395			
	23	20	142			
	25	11	86			
	26	26	260			
TOTAL			5,191			
Small Creek T11N, R22W s. 1,2,3 15,22	16	45	763	.1	6.2	OR, CC-ST, SW
	18	110	622			
	23	8	29			
	25	26	730			
	26	30	360			
TOTAL			2,504			
D-3 Small Sales District Wide	Various	230	2,305	-0-	-0-	CC-ST, Salv., OR
NINEMILE RANGER DISTRICT						
Quartz T14,15N, R26W, s. 2,3, 25,26,27,34,35,36	16	500	2,400	1.0	5.0	OSR, SW, CC
	17	50	200			
	18	50	200			
Devil's Creek T17N, R25W s. 10,11, 13,14,15,22,23,24	16	220	5,000	-0-	-0-	CC/ST
Lower Kennedy T16N, R23W s. 22&23	18	80	1,200	-0-	-0-	CC/ST
	25	80				
D-4 Small Sales District Wide	16	150	1,000	-0-	-0-	CC/ST, Thin
	18	50				

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 86

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads		Harvest Method
				Const	Reconst	
PLAINS/THOMPSON FALLS RANGER DISTRICT						
Murr Outback T25N, R25&26W	16	563	8,500	10.0	-0-	CC, ST, SW
Pine Hill T25N, R25&26W	16	547	7,900	14.5	-0-	CC, ST, SW
Upper South Rock T24N, R25W	16	630	7,600	10.0	-0-	CC, ST, SW
D-5/8 Small Sales District Wide	Various	630	3,800	-0-	-0-	Various
SEELEY LAKE RANGER DISTRICT						
Monture-Center	16	180	3,075	2.3	-0-	ST, SW, CC
T16N, R12W s. 7,29,	14	20				
30,32	13	10				
T16N, R13W s. 1,2,12	24	10				
T17N, R13W s. 36						
Fallen Arch	16	150	1,350	-0-	-0-	ST, OSR
T17N, R15W s. 29,30,	13	13	150			
31,32						
Little Shanley	25	97	770	0.2	-0-	ST
T16N, R14W s. 11,12,13	16	155	1,558			
T16N, R13W, s. 18	14	6	72			
S.P.A.	20	15	150	-0-	-0-	SW, ST
T17N, R15W s. 18,19	16	29	75			
T19N, R15W s. 18						

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 86

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads Const	Roads Reconst	Harvest Method
SUPERIOR RANGER DISTRICT						
Borax	16	80	1,000	-0-	-0-	CC, SW
T19&20N, R32W	25	150	1,500			
	24	5	500			
Big Flat	16	240	3,000	5.7	-0-	CC, ST
T15&16N, R28W	24	100	2,000			
Butler	16	300	3,400	3.3	2.0	CC, ST, SW, OR
T19N, R28W	23	25	300			
	18	60	700			
Ann Arbor	16	380	6,000	3.5	.8	C
D-6 Small Sales District Wide	Various	500	6,600			CC, SW, OR

TIMBER SALE SCHEDULE FISCAL YEAR 87
MISSOULA RANGER DISTRICT

Tyler Creek	16	268	2,635	5.8	-0-	SW, CC-ST, OR
T10N, R15W s. 3,4	18	293	2,383			Intermed.
T11N, R15W s. 26,28,34	23	80	624			
T11N, R14W s. 30	27	18	158			
TOTAL			5,800			
D-3 Small Sales District Wide	Various	420	4,200	-0-	-0-	CC-ST, Salv., OR
NINEMILE RANGER DISTRICT						
Siegel Pass T17N, R25W s. 1,2,3, 10,11,12	16	180	2,600	-0-	-0-	CC/ST, SW
Eustache Saddle T17N, R25W s. 2,3,10, 11,12,14	16	190	2,200	-0-	-0-	CC/ST, SW

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 87

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads		Harvest Method
				Const	Reconst	
NINEMILE RANGER DISTRICT (continued)						
Edith Lump Sum T15N, R21W s. 4,7, 8,9,10	16 18 22 23 25	368	3,600	9.5	4.8	CC/ST, SW
Lupine Ridge T12N, R24W s. 13	16 25	42 8	1,000	1.3	-0-	CC/ST
D-4 Small Sales District Wide	16	100	600	-0-	-0-	CC/ST, Thin
PLAINS/THOMPSON FALLS RANGER DISTRICT						
Chippy Creek T24N, R25W s. 19,20 29,30,31 T24N, R26W s. 13,14, 15,22,23,24,25,26, 27,28	16 21 17 24	1,400 60 40 261	8,600 440 240 700	30.0	4.5	CC, ST, SW
Bear Creek T23N, R25W s. 5,6,7,8 T23N, R26W s. 1,2,3, 10,12,13 T24N, R25W s. 31,32 T24N, R26W s. 25,26, 27,34,35,36	16 27	1,000 20	9,800 200	16.0	9.0	CC, ST, SW
Lower Mandy T24N, R26W s. 1,2 T25N, R26W s. 36	16 24	420 80	2,600 420	5.0	-0-	CC, ST, SW
D-5/8 Small Sales District Wide	Various	400	2,000	-0-	-0-	CC, ST

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 87

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads		Harvest Method
				Const	Reconst	
SEELEY LAKE RANGER DISTRICT						
South Lake	16	142	3,638	-0-	-0-	ST
T16N, R11W s. 20,21	13	18	466			
22,27,28,29,32,33,	25	69	1,788			
34	24	26	673			
	20	121	3,135			
SUPERIOR RANGER DISTRICT						
Two Creek T16N, R27W	16	570	8,500	6.0	1.0	CC
Gilt Edge	16	530	8,000	-0-	-0-	CC
T19N, R31W	18	180	3,000	7.0	-0-	
D-7 Small Sales District Wide	Various	400	5,800	-0-	-0-	All

TIMBER SALE SCHEDULE, FISCAL YEAR 88
MISSOULA RANGER DISTRICT

Bear Creek	16	301	3,304	2.3	1.8	CC-ST, OR
T12N, R22W s. 2,3,10, 11,14,24 T13N, R22W s. 35,36	17	286	2,365			
TOTAL			5,669			
D-3 Small Sales District Wide	Various	430	4,331	-0-	-0-	CC-ST, Salv., OR

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 88

Sale Name	Management Area	Acres	Volume MBF	Roads		Harvest Method
Legal Description				Const	Reconst	
NINEMILE RANGER DISTRICT						
St. Louis Creek T17N, R25W s. 12,13 T17N, R24W s. 6,7,18	16 25	70 30	1,300 300	-0-	-0-	CC/ST
Sixmile W.R. T15N, R22W s. 2,3	18 23 25	10 100 23	1,000	2.8	-0-	CC/ST
John's Creek T13N, R23W s. 16,20, 21,22,23,27,28	16 18	445 80	6,500 500	8.2	-0-	CC/ST
D-4 Small Sales District Wide	16 18	40 10	400	-0-	-0-	CC/ST, Thin
PLAINS/THOMPSON FALLS RANGER DISTRICT						
CLiff Creek T24N, R27W s. 20,22 28,30,32	16 18 26	572 50 17	4,120 780 100	12.0	14.0	CC, ST, SW
Shroder Tie Through T24N, R25W s. 30,20 28 T24N, R26W s. 20,28 14,24	16	850	7,000	15.0	1.5	CC, ST, SW
Little Rock-Sears T23N, R26W s. 13,14, 15,22,23,24,25,26,27, 34,35	16 17	850 100	7,200 800	15.0	5.0	CC, ST, SW
D-5/8 Small Sales District Wide	Various	1,000	5,000	-0-	-0-	CC, ST
SEELEY LAKE RANGER DISTRICT						
Section 24 T16N, R16W s. 24,26	16 25	37 54	347 819	2.24	0.11	ST, OSR

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 88

Sale Name	Management		Volume	Roads		
Legal Description	Area	Acres	MBF	Const	Reconst	Harvest Method
SEELEY LAKE RANGER DISTRICT (continued)						
Belmont II	16	450	4,854	6.38	-0-	ST, CC, OSR
T15N, R16W s. 6,8	1	20	280			
T16N, R16W s. 32						
T15N, R17W s. 12						
D-6 Small Sales	16	300	700	-0-	-0-	OSR
District Wide	25					
	13					
SUPERIOR RANGER DISTRICT						
Eaglet	16	210	2,300	-0-	-0-	CC, ST
T17N, R27W	18	40	400	1.0	-0-	
Dromedary	16	200	2,000	2.0	6.0	CC, ST, SW, OR
T18N, R28&29W	22	50	500			
	24	50	500			
Haugan Mountain	18	225	3,000	3.0	-0-	CC, ST, SW
T19N, R30&31W	25	50	500			
Fisher	16	425	6,000	4.5	1.0	CC, ST
T18N, R28&29W						
Randolf	16	250	3,500	6.0	-0-	CC, ST
T19&20N, R31W						
Keystone Ridge	16	150	2,000			
T18N, R26&27W	18	20	300			
	21	30	1,500	6.0	-0-	CC, ST
	25	100	1,500			
D-7 Small Sales	Various	450	4,000	-0-	-0-	All
District Wide						

TIMBER SALE SCHEDULE, FISCAL YEAR 89
MISSOULA RANGER DISTRICT

West Fork Schwartz	16	334	3,404	2.5	19.8	CC-ST, SW, OR
T11N, R17W s. 6,18	18	141	1,596			
T11N, R18W s. 1,10,						
11,12,13,14,15						
TOTAL			5,000			

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 89

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads		Harvest Method
				Const	Reconst	
MISSOULA RANGER DISTRICT (continued)						
Lavalle	16	205	1,613	1.1	7.6	CC-ST, SW, OR
T15N, R19W s. 28,32, 33	25	69	380			
T14N, R19W s. 4,5						
TOTAL			1,993			
D-3 Small Sales District Wide	Various	500	5,007	-0-	-0-	CC-ST, Salv., OR
NINEMILE RANGER DISTRICT						
Ed's Creek	16	500	7,000	13.3	-0-	CC/ST
T13N, R23W s. 6,7 17,18						
T14N, R24W s. 1,13						
West Fork Sixmile	16	260	2,600	6.0	-0-	CC/ST
T15N, R22W s. 1	18	40	400	-0-	2.0	
T16N, R21W s. 30	23	30	300			
T16N, R22W s. 24,25, 26,35,36	25	30	300			
Horse Head Fire	16	550	5,500	20.6	-0-	CC/ST
T16N, R24W s. 13,14, 23,24,25	18	25	250			
T16N, R23W s. 19,30, 31	25	25	250			
D-4 Small Sales	16	80	2,400	-0-	-0-	CC/ST, SW, Thin
District Wide	18	80				
	23	80				

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 89

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads Const	Roads Reconst	Harvest Method
PLAINS/THOMPSON FALLS RANGER DISTRICT						
Dry Gold T20N, R29W, s. 8,9, 15,16,17,18,19,20,21	16 25 21	1,000 165 80	6,000 1,250 750	13.0	1.0	CC, ST, SW
East Bay T22N, R28W s. 13,23, 24,25,26,35,36 T22N, R27W s. 18,30, 14,22,32 T21N, R27W s. 4	16 21	1,238 25	10,900 100	30.3	6.0	CC, ST, SW
Shroder Salvage T25N, R26W s. 20,22, 26,27,28,34,36 T24N, R26W s. 1,2 T25N, R25W s. 32 T24N, R25W s. 4,5,6, 7,8,9	16	400	4,000	3.0	-0-	CC , ST, SW
Dirty Looter T22N, R31W s. 2,3, 4,5 T21N, R30W s. 1,2, 6,7,11,12	16	510	4,000	10.1	.5	CC, ST
Upper Clear T22N, R31W s. 29,30, 31,32	16	700	3,500	8.0	4.0	CC, ST
D-5/8 Small Sales District Wide	Various	600	3,500	-0-	-0-	CC, ST
SEELEY LAKE RANGER DISTRICT						
East Loop T18N, R15W s. 1,6 T19N, R15W s. 29,32, 36	20 13 16	275 16 6	2,400 240 50	4.53	1.58	CC, S, OSR

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APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 89

Sale Name	Management		Volume	Roads		
Legal Description	Area	Acres	MBF	Const	Reconst	Harvest Method
SEELEY LAKE RANGER DISTRICT (continued)						
"44"	16	282	1,966	4.75	-0-	ST
T15N, R16W s. 2,4	26	19	190			
T16N, R16W s. 34	17	61	854			
Rice ST	25	175	600	-0-	-0-	OSR
T17N, R15W s. 11,14, 15,22,23,27	16	25	400			
Seeley Trail S.T.	25	500	300	-0-	-0-	OSR
T17N, R15W	16					
SUPERIOR RANGER DISTRICT						
Tujo	16	350	5,000	3.0	-0-	CC, ST
T17N, R29W						
Phoebe-Windfall	16	500	5,000	4.3	10.0	CC, ST
T15N, R26&27W						
Second Miller	16	450	6,500	10.0	5.0	CC, ST, SW
T16&17N, R24W	18	50	500			
T16N, R25W						
Camelot	16	200	2,000			
T19N, R28&29W	18	50	500	3.4	2.0	CC,ST,SW
	22	20	200			
	24	30	300			
North Moore	16	500	7,000	2.0	-0-	CC, ST, SW
T17N, R29W						
D-7 Small Sales District Wide	Various	600	8,000	-0-	-0-	All
ALL DISTRICTS	Various		15,000 (unregulated)			All

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 90

Sale Name	Management		Volume	Roads		
Legal Description	Area	Acres	MBF	Const	Reconst	Harvest Method
MISSOULA RANGER DISTRICT						
Gilbert T10N, R17W s. 5,6, 8,9 T10N, R18W s. 1,2, 11,12 T11N, R17W s. 30,32 T11N, R18W s. 22,23, 25,26,27,36	16 17 26	467 80 30	3,938 771 291	8.0	30.6	CC-ST, SW
TOTAL			5,000			
North Fork Howard T12N, R23W s. 10,14	16 18 25	121 43 45	1,569 468 578			
TOTAL			2,615			
D-3 Small Sales District Wide	Various	430	4,385	-0-	-0-	CC-ST, Salv., OR
NINEMILE RANGER DISTRICT						
Sawmill Deer T13N, R24W s. 3,4,10 T14N, R23W s. 5,7,9, 17,21 T14N, R24W s./ 12,14, 22,24	16 17 18	250 150 250	3,500 1,500 1,500	10.0	-0-	CC/ST
West Stark Mountain T15N, R23W s. 7,8,16, 22,28,30	16 18 23 25	120 280 40 40	1,200 1,900 200 200	-0-	-0-	CC/ST
Hell's Thicket T15N, R25W s. 31,32 T14N, R24W s. 2,3 T14N, R25W s. 6,7,8, 17,18	16	400	5,000	12.9	-0-	CC/ST, SW

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 90

Sale Name	Management		Volume	Roads		
Legal Description	Area	Acres	MBF	Const	Reconst	Harvest Method
NINEMILE RANGER DISTRICT (continued)						
Pine Marion	16	150	1,280	2.4	-0-	CC/ST
T17N, R23W s. 28,33, 34	18	60	720			
D-4 Small Sales	16	100	1,000	-0-	-0-	CC/ST, Thin.
District Wide	18	100	1,000			
PLAINS/THOMPSON FALLS RANGER DISTRICT						
Shorty Gulch	16	360	2,500	9.0	2.6	CC, ST, SW
T21N, R30W s. 3,4, 9,10,14,16,21,22	17	100	600			
	18	250	1,500			
	22	30	180			
	23	40	220			
Coney	16	600	5,000	5.0	5.0	CC, ST, SW
T22N, R25W s. 2,3,4, 5,8,9,10,11						
T23N, R25W s. 34,35						
Graves Creek	20	450	2,000	4.5	10.8	CC, ST, SW
T23N, R29W s. 14,15, 16,21,22,23						
Upper Dry Wilkes	16	1,230	7,800	43.8	4.0	CC, ST, SW
T20N, R30W s. 4,5,7, 8,9,10,11,15,16,17, 18,19,20,21,22,29,30	19&21	162	1,200			
T20N, R31W s. 12,13, 14,23,24						
Demont	16	600	6,000	11.1	1.0	CC, ST
T21N, R32W s. 13,24	25	100	1,000			
T21N, R31W s. 6,7, 8,9,17,18,19,20						

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 90

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads Const	Roads Reconst	Harvest Method
PLAINS/THOMPSON FALLS RANGER DISTRICT (continued)						
Blossom T21N, R32W s. 16,20, 21,22	24	380	3,000	9.4	1.0	CC, ST, SW
D-5/8 Small Sales District Wide	Various	600	3,000	-0-	-0-	CC, ST
SEELEY LAKE RANGER DISTRICT						
North Cottonwood T17N, R13W s. 31,32 T16N, R13W s. 5,6	16	152	2,000	2.0	0.8	CC, ST
Dunham T16N, R13W s. 2,3,4, 11,12 T17N, R13W s. 33,34	16 25	72 156	908 1,392	2.6	0.7	ST
Dry Canyon T16N, R13W s. 8,9, 16,17,21,22	16 26	125 28	2,209 491	-0-	-0-	CC, ST
SUPERIOR RANGER DISTRICT						
Recoyle T17&18N, R29W	16	200	3,000	8.0	1.0	CC, ST
1st Johnson T17N, R25W	16	500	8,000	15.0	-0-	CC, ST, SW
Hemlock Mountain T19&20N, R31W	16 25	310 40	4,500 500	8.0	-0-	CC, ST, SW
Hendrickson T17N, R28W	16	300	4,000	5.0	-0-	CC, ST

APPENDIX E (continued)

TIMBER SALE SCHEDULE, FISCAL YEAR 90

Sale Name Legal Description	Management Area	Acres	Volume MBF	Roads Const	Roads Reconst	Harvest Method
SUPERIOR RANGER DISTRICT (continued)						
Big Sunday T19N, R31W	16	300	4,000			
Mineral Mountain T19N, R29W	16	300	4,000	6.0	-0-	CC, ST, SW
D-7 Small Sales District Wide	Various	500	7,000	-0-	-0-	All
ALL DISTRICTS	Various		15,000 (unregulated)			All

TIMBER SALE SCHEDULE, FISCAL YEAR 91-95

Lolo National Forest	Various	107 MMBF (regulated)	Various
	Various	15 MMBF (unregulated)	Various

APPENDIX F

Oil and Gas Lease Stipulations, Environmental Assessment, and Decision Notice

A. OIL AND GAS LEASE STIPULATIONS

A stipulation does not necessarily apply to 100 percent of the management area to which it is assigned, except for numbers 3, 5, 6, 10, and 11 which apply to all leases in all cases. For example, Stipulation 1 assigned to MA 16 would not be included with the lease recommendation if the specific area covered by the application contained only slopes under 60 percent.

	CONCERN	PRESCRIPTION	STIPULATION
1.	Soils-Slope	Surface occupancy will not normally be allowed on slopes greater than 60 percent.	No surface occupancy by location (MT 3109-3)
1a.	Soils-Sensitive Soil Types	No surface occupancy will be allowed from April 15 to June 15 on identified Lake Missoula, granitic, and mica schist soils	No surface occupancy by timing (MT 3109-3)
2.	Water-Riparian Zones	No surface occupancy or disturbing activities unless specially designed to protect water quality and minimize vegetation disturbance will be allowed within 300 feet of the normal high-water line of all streams, lakes, springs, swamps, reservoirs, or water developments or facilities.	Surface occupancy restriction by location (MT 3109-3)
2a.	Water-Flood Plains	No surface occupancy will be allowed within the 100-year flood plain other than for specially designed roads, utilities, and pipelines.	No surface occupancy by location (MT 3109-3)
2b.	Water-Municipal and Baseline Watersheds	Prevent extensive or continuous disturbance within municipal or baseline watersheds.	Activity coordinating stipulation (MT 3109-7)
3.	Wildlife-T&E	Over the entire study area, conduct biological evaluation and, if needed, initiate formal consultation with the FWS for all oil and gas activities found to result in a "may affect" situation as per FSM 2670.	Standard T&E stipulation (MT Form 3109-12)
3a.	Wildlife-T&E	Prevent long-term or extensive disturbance within key T&E species habitat.	Activity coordinating stipulation (MT 3109-7)

CONCERN	PRESCRIPTION	STIPULATION
3b. Wildlife-T&E	No surface occupancy will be allowed in grizzly bear denning areas.	No surface occupancy by location (MT 3109-3)
3c. Wildlife-T&E	Keep surface activities 1/4 mile away from bald eagle nests all year long, and 1/2 mile away from them between February 15 and July 31.	No surface occupany and surface occupancy restriction (MT 3109-3)
3d. Wildlife-Protected	Keep surface activities 1/4 mile away from inactive golden eagle nests from January 1 to July 31.	Surface occupancy restriction by location and timing (MT 3109-3)
3e. Wildlife-T&E	Keep surface activities 1/4 mile away from inactive peregrine falcon nests from February 28 to May 1, and from February 28 to August 1 stay 1/4 mile from active nests.	Surface occupancy restriction by location and timing (MT 3109-3)
3f. Wildlife-Nongame	Keep surface activities 1/4 mile away from active prairie falcon nests from March 1 to July 31, and from March 1 to April 30 stay 1/4 mile from inactive nests.	Surface occupancy restriction by location and timing (MT 3109-3)
3g. Wildlife-Nongame	Restrict occupancy to 1/4 mile from heron nests from February 15 to July 15.	Surface occupancy restriction by location and timing (MT 3109-3)
3h. Wildlife-Nongame	Restrict occupancy to 1/4 mile from osprey nests from April 1 to August 30.	Surface occupancy restriction by location and timing (MT 3109-3)
3i. Wildlife-Big Game	To avoid conflicts on identified winter range, restrict initiation of surface-disturbing activities from December 1 to May 15.	Surface occupancy restriction by location and timing (MT 3109-3)
3j. Wildlife-Big Game	To avoid critical elk summer range conflicts, restrict initiation of surface disturbing activities from August 1 to October 10.	Surface occupancy restriction by location and timing (MT 31090-3)
4. Special Management Areas-Research Natural Areas	Allow no surface occupancy or disturbance within Research Natural Areas.	No surface occupancy by location (MT 3109-3)

	CONCERN	PRESCRIPTION	STIPULATION
5.	Cultural Resources	Cultural resource surveys must be made on areas identified for surface disturbance prior to the initiation of activity.	Covered by standard stipulation (MT Form 3109-12)
6.	Visual Resources	Projects within areas of VQO Retention or Partial Retention will be subject to reasonable modification in order to maintain existing VQO.	Covered by standard stipulation (MT Form 3109-12)
7.	Recreation Sites	No surface occupancy will be allowed within 400 feet of any developed recreation site. Within 1/4 mile of these sites, coordinate the timing and location of exploration activities to minimize use conflicts.	No surface occupancy by location (MT 3109-3)
7a.	Ski Areas	No surface occupancy will be allowed on lands under special use for ski areas during the life of the special use permit.	No surface occupancy by location (MT 3109-3)
8.	Administrative Sites	No surface occupancy will be allowed on Forest Service administrative sites.	No surface occupancy by location (MT 3109-3)
9.	Rain Gauge-Snow Survey Stations	No surface disturbance will be allowed on rain gauge and snow survey station sites.	No surface occupancy by location (MT 3109-3)
10.	Fire	The lessee shall take all precautions necessary to prevent and suppress fire.	Standard stipulation BLM Form 3109-3
11.	Roads	All new access roads will be evaluated for potential for retention into the Forest road system. During exploration, development, and production, some of the roads may be closed to public use.	MT 3109-3

B. ENVIRONMENTAL ASSESSMENT AND DECISION NOTICE

LOLO NATIONAL FOREST
OIL AND GAS LEASE ENVIRONMENTAL ASSESSMENT AND DECISION NOTICE

I. INTRODUCTION

A. Location

1. Ranger District ____________________ Date of Assessment ____________
2. Applicant (name and address) ______________________________
____
____
3. Case No. ____________________ Date of Application ____________
4. Area Applied for ______________________________
____
____
5. The purpose of this EA is to implement the Forest Service management direction given in the Lolo Forest Plan (1982).
6. EA Team:

____________________ ____________________
____________________ ____________________
____________________ ____________________
____________________ ____________________

B. Land Status

1. Surface Ownership ______________________________
2. Mineral Ownership ______________________________
3. Special Management Area (NRA, Research Natural Area, etc.)
____ Yes ____ No If yes, name of the SMA ____________
4. Existing Encumbrances (right-of-way, water development, etc.) ______
____
5. Adjacent NF involved? ____ Yes ____ No If yes, the ____________
6. Which Forest has the larger portion of this application? ____________

II. AFFECTED ENVIRONMENT, EVALUATION CRITERIA, AND MANAGEMENT PRESCRIPTION

A. Field/Office Review of the Lease Offer

	CONCERN	PRESCRIPTION	STIPULATION FORM	LOCATION AND ACRES
1.	Soils-Slope	NSO on slopes greater than 60%.	MT 3109-3	
1a.	Soils-Sensitive	NSO from Apr. 15 to June 15.	MT 3109-3	
2.	Water-Riparian Zones	NSO with 300 feet unless specifically agreed to by District Ranger and Area Engineer, USGS.	MT 3109-3	
2a.	Water-Flood Plains	NSO within 100-year flood plain unless specifically agreed to by District Ranger & Area Engineer, USGS.	MT 3109-3	
2b.	Water-Municipal and Baseline Watersheds	Activity coordination stipulation to prevent extensive or continuous disturbance.	MT 3109-7	
3.	Wildlife-T&E	Conduct T&E inventory and, if needed, biological evaluation as per FSM 2670.	MT Form 3109-12	
3a.	Wildlife-T&E	Activity coordination stipulation to prevent extensive or continuous disturbance in identified habitat which is occupied essential.	MT 3109-7	
3b.	Wildlife-T&E	NSO in grizzly bear denning areas.	MT 3109-3	
3c.	Wildlife-T&E	NSO 1/4 mile from bald eagle nests all year and 1/2 mile from nests from Feb. 15 to July 31.	MT 3109-3	
3d.	Wildlife-T&E	NSO 1/4 mile from inactive golden eagle nests from Jan. 1 to Apr. 30, and 1/2 mile from active nests from Jan. 1 to July 31.	MT 3109-3	
3e.	Wildlife-T&E	NSO 1/4 mile from inactive peregrine falcon nests from Feb. 28 to May 1. NSO 1/4 mile from active peregrine nests from Feb. 28 to Aug. 1.	MT 3109-3	
3f.	Wildlife-Nongame	NSO 1/4 mile from active prairie falcon nests from Mar. 1 to July 31; NSO 1/4 mile from inactive falcon nests from Mar. 1 to Apr. 30.	MT 3109-3	

CONCERN	PRESCRIPTION	STIPULATION FORM	LOCATION AND ACRES
3g. Wildlife-Nongame	NSO 1/2 mile from heron nests between Feb. 15 and July 15.	MT 3109-3	
3h. Wildlife-Nongame	NSO 1/4 from osprey nests between Apr. 1 and Aug. 30.	MT 3109-3	
3i. Wildlife-Big	SOR from Dec. 1 to May 15 to protect identified winter range.	MT 3109-3	
3j. Wildlife-Big	SOR from Aug. 1 to Oct. 10 to protect elk summer range.	MT 3109-3	
4. Special Management Areas-RNA's	No surface occupancy.	MT 3109-3	
5. Cultural Resource Values	Surveys must be made prior to surface disturbance and identified sites avoided.	MT Form 3109-12	
6. Visual Resources	Projects may need to be modified to protect existing visual quality objective class.	MT Form 3109-12	
7. Recreation Sites	NSO within 400 feet of developed sites and coordinate location and timing of exploration activities within 1/4 mile.	MT 3109-3	
7a. Ski Areas	NSO on ski area lands under special use permit.	MT 3109-3	
8. Administrative Sites	No surface occupancy.	MT 3109-3	
9. Rain Gauge-Snow Survey Stations	No surface occupancy.	MT 3109-3	
10. Fire	Lessee shall take precautions to prevent and suppress fire.	Form 3109-3	
11. Roads	Road access will be coordinated with the Forest road system. Some access roads may be closed to the public during exploration, development, and production.	MT 3109-3	

Other Site Specific Concerns ________________________________

____

____

B. Additional Comments

1. Percentage of lease available for surface occupancy: __________%

2. Attach or reference any data or information used in this analysis if not cited in the Lolo Forest Plan.

III. FOREST SERVICE PREFERRED ALTERNATIVE

___ A. Issue the lease with the standard stipulations as well as any special stipulations identified in this environmental assessment.

___ B. Issue the lease with no surface occupancy due to the high environmental sensitivity of the lands and resources embraced by this lease offer, the limited occupancy opportunity, and the close proximity to adjacent leases with surface occupancy.

___ C. Deny issuance of the lease due to the high environmental sensitivity of the lands and resource embraced by this lease offer, the lack of or limited occupancy and/or the lack of occupancy opportunity on adjacent leases.

___ D. Defer recommendations on this lease application until ____________ because ____.

___ E. Issue the lease with the Limited Surface Use stipulation to cover the entire application area because of the special environmental values, surface uses, or environmental constraints identified in this analysis. This alternative was selected because ____________________ ____.

______________________________ ____________
District Ranger Date

______________________________ ____________
Forest Supervisor Date

IV. DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT

It is my decision to adopt the recommendations of the Lolo National Forest for the reasons documented above. I have determined, through this analysis tiered to the above-captioned Environmental Assessment, that this is not a major Federal action that would significantly affect the quality of the human environment. Therefore, an Environmental Impact Statement is not needed. This determination was based upon consideration of the site specific physical, biological, and socio-economic factors identified in this analysis. Environmental Analysis documents relating to this oil and gas lease recommendation are available for review at the Regional Office and the Lolo National Forest Supervisor's Office.

______________________________ ____________
TOM COSTON Date
Regional Forester

APPENDIX G

Timber Harvest System Selection Guidelines

The following guidelines are to be used when selecting a timber harvest system. Deviation from these requires a written justification statement to be included in the project Environmental Assessment.

1. Animal Yarding (Horses Primarily)

   a. Restricted to favorable slopes or nearly flat ground (-10 to -30 percent).

   b. Restricted to short skidding distance, maximum 500 feet.

2. Tractor Yarding (Rubber-tired, Rigid Track, Soft-track Skidders)

   a. Slope, skidding distance, and skidding patterns will be determined by the soil, hydrology, and VQO of the particular site.

   b. Under normal circumstances, tractor operations shall not be permitted within the riparian zone or slopes greater than 35 percent. When necessary to deviate, specialist is required with documentation in the project Environmental Assessment.

3. Cable Yarding (Ground Lead, Skyline)

   a. Ground lead cable is restricted to stands with residual stand density of 40 trees per acre or less.

   b. The maximum uphill ground lead yarding distance is 600 feet except in a clearcut where the maximum uphill yarding distance is 900 feet.

   c. The maximum downhill ground lead yarding distance is limited to 900 feet in clearcuts only.

   d. The maximum uphill skyline yarding distance is limited to 2,000 feet and a minimum loaded midspan deflection of 6 percent.

   e. The maximum downhill skyline yarding distance is limited to 1,200 feet and a minimum loaded midspan deflection of 8 percent.

   f. Mobile gutline anchors and tailholds will not be permitted to construct trails to mineral soil.

   g. Lateral skidding distance, corridor spacing, corridor width, and log suspension will be determined by the silviculture, soil, hydrology, and VQO of the particular site.

4. Aerial Yarding (Helicopter, Balloon)

Aerial yarding (helicopter, balloon) will require Supervisor's Office approval prior to beginning layout.

5. Suspension of Logs

Full suspension of logs is required over all live streams.

APPENDIX H

Withdrawals From Mineral Entry

A. EXISTING AND PROPOSED WITHDRAWAL INVENTORY - SEPTEMBER 7, 1984

Existing Withdrawals

Serial No.	Name of Site	Township - Range	Acres	Scheduled Date of Review
M032372	Quartz Flat Recreation Area	T. 15 N., R. 25 W.	85.00	1983
M060295	Big Horn Recreation Area	T. 7 N., R. 16 W.	42.50	1984
*M060295	Big Larch Camp	T. 17 N., R. 15 W.	77.83	1984
*M060295	Big Nelson Camp	T. 15 N., R. 10 W.	43.42	1984
M060295	Bitterroot Flat Camp	T. 8 N., R. 17 W.	60.00	1984
M060295	Cascade Camp	T. 18 N., R. 25 W.	82.28	1985
M060295	Clark Memorial	T. 22 N., R. 28 W.	20.00	1985
M060295	Copper King Camp	T. 22 N., R. 28 W.	15.00	1985
M060295	Cougar Creek Camp	T. 8 N., R. 17 W.	20.00	1984
M060295	Dalles Camp	T. 9 N., R. 17 W.	27.50	1984
M060295	Fishtrap Lake Camp	T. 24 N., R. 28 W.	17.50	1985
M060295	Harry's Flat Camp	T. 9 N., R. 17 W.	130.00	1984
M060295	Hutsinpillar Camp	T. 8 N., R. 17 W.	5.00	1984
*M060295	Lake Alva Camp	T. 18 N., R. 16 W.	13.00	1984
*M060295	Lake Inez Camp	T. 18 N., R. 15 W.	27.74	1984
M060295	Lee Creek Camp	T. 11 N., R. 23 W.	10.00	1983
M060295	Lewis and Clark Camp	T. 12 N., R. 22 W.	20.00	1983
M060295	Pattee Canyon Picnic Area	T. 12 N., R. 18 W.	24.95	1984
M060295	Pattee Canyon Picnic Area	T. 12 N., R. 19 W.	682.79	1984
*M060295	Seeley Lake Camp	T. 17 N., R. 15 W.	46.01	1984
*M060295	West Fork Camp	T. 22 N., R. 28 W.	7.50	1985
M060295	West Fork Fishtrap Camp	T. 24 N., R. 28 W.	10.00	1985
*M069190	Alva Camp	T. 18 N., R. 16 W.	75.17	1984
M069190	Blue Slide Camp	T. 23 N., R. 30 W.	25.58	1985
M069190	Little Joe Creek Camp	T. 17 N., R. 28 W.	10.00	1985
M069190	Little Joe Creek Camp	T. 18 N., R. 28 W.	20.00	1985
M069190	Norton Picnic Site	T. 10 N., R. 16 W.	35.79	1984
M069190	Norton Picnic Site	T. 10 N., R. 17 W.	33.00	1984
M069190	Quartz Flat Campground	T. 15 N., R. 25 W.	168.16	1983
M069190	Sloway Campground	T. 17 N., R. 27 W.	86.91	1985
M073085	St. Regis Ranger Station	T. 18 N., R. 28 W.	120.00	1985
M1333	Fishtrap Lake Camp	T. 24 N., R. 28 W.	147.50	1985
M1416	Cabin City Campground	T. 19 N., R. 29 W.	200.00	1985
M1416	Patrick Creek Campground	T. 18 N., R. 26 W.	141.77	1985

Existing Withdrawals (continued)

Serial No.	Name of Site	Township - Range	Acres	Scheduled Date of Review
M1422	Gold Rush Recreation Area	T. 20 N., R. 29 W.	20.00	1985
*M1422	Lake Alva Boat Launch	T. 18 N., R. 16 W.	10.00	1984
*M1422	Rainy Lake Recreation Area	T. 18 N., R. 16 W.	61.68	1984
*M1422	River Point Recreation Area	T. 17 N., R. 15 W.	62.75	1984
M16312	Blue Mountain Lookout	T. 12 N., R. 21 W.	10.00	1983
*M16312	East Spread Lookout	T. 16 N., R. 12 W.	10.00	1984
*M16312	Edith Peak Lookout	T. 16 N., R. 21 W.	10.00	1983
M16312	Landowner Mountain Lookout	T. 15 N., R. 26 W.	20.00	1983
*M16312	Mormon Peak Lookout	T. 11 N., R. 20 W.	10.00	1983
*M16312	Morrell Mountain Lookout	T. 17 N., R. 14 W.	10.00	1984
*M16312	Plateau Mountain Lookout	T. 14 N., R. 23 W.	10.00	1983
*M16312	Sliderock Mountain Lookout	T. 10 N., R. 16 W.	10.00	1984
M16312	Stark Mountain Lookout	T. 15 N., R. 24 W.	10.00	1983
M16312	Thompson Peak Lookout	T. 16 N., R. 26 W.	20.20	1983
*M16312	West Fork Butte Lookout	T. 11 N., R. 22 W.	10.00	1983
M16312	Williams Peak Lookout	T. 14 N., R. 25 W.	20.00	1983
M20087	Rock Creek Streamside Zone	T. 7 N., R. 16 W.	133.00	1984
M20087	Rock Creek Streamside Zone	T. 7 N., R. 17 W.	40.00	1984
M20087	Rock Creek Streamside Zone	T. 8 N., R. 17 W.	921.00	1984
M20087	Rock Creek Streamside Zone	T. 9 N., R. 17 W.	687.00	1984
M20087	Rock Creek Streamside Zone	T. 10 N., R. 16 W.	248.00	1984
M20087	Rock Creek Streamside Zone	T. 10 N., R. 17 W.	112.00	1984
*M2105	Harvey Creek Road No. 307	T. 11 N., R. 14 W.	3.64	1984
M39381	South Fork Lolo Creek (Selway-Bitterroot) Wilderness Trailhead Facility)	T. 11 N., R. 21 W.	113.37	1984
M41831	Hoodoo Meadows Recreation Area	T. 14 N., R. 27 W.	140.00	1985
M41831	Trout Creek Campground	T. 16 N., R. 26 W.	50.00	1983
*M41855	Grave Creek Administrative Site	T. 12 N., R. 22 W.	40.00	1983
M41875	Monture Administrative Site	T. 16 N., R. 12 W.	160.00	1984
M41892	Redpepper Jack Ranger Station	T. 11 N., R. 14 W.	5.00	1984
M41892	Redpepper Jack Ranger Station Pat.	T. 11 N., R. 14 W.	55.00	1984
*M41899	Seeley Lake Administrative Site	T. 17 N., R. 15 W.	123.00	1984
*M41900	Seeley Lake Ranger Station	T. 17 N., R. 15 W.	119.01	1984
*M41924	Bonita Administrative Site	T. 11 N., R. 16 W.	44.49	1984
M41926	Grizzly Creek Administrative Site	T. 10 N., R. 16 W.	160.00	1984
M41930	Rock Creek Ranger Station	T. 8 N., R. 17 W.	144.00	1984
*M42905	Martina Ranger Station	T. 17 N., R. 24 W.	120.00	1983
M42096	Clearwater Crossing Ranger Station	T. 13 N., R. 25 W.	160.00	1983
*M42098	Petty Creek Ranger Station	T. 14 N., R. 22 W.	320.00	1983
M42107	Quartz Administrative Site	T. 15 N., R. 25 W.	109.23	1983

Existing Withdrawals (continued)

Serial No.	Name of Site	Township - Range	Acres	Scheduled Date of Review
*M42108	Cotton Flat Administrative Site	T. 15 N., R. 25 W.	154.76	1983
*M42112	Lolo Springs Administrative Site	T. 11 N., R. 23 W.	80.00	1983
*M42115	Rock Creek Administrative Site	T. 23 N., R. 26 W.	40.00	1985
M42154	St. Regis Ranger Station	T. 18 N., R. 28 W.	160.00	1985
M42155	Savenac Ranger Station	T. 19 N., R. 30 W.	160.00	1985
M45222	Bend Ranger Station	T. 25 N., R. 27 W.	80.00	1985
M1169	Savenac Nursery Big Creek Add.	T. 19 N., R. 30 W.	280.00	1985

* These areas have been identified in the initial determination as no longer needing the withdrawal status for administration of the land.

TOTALS

	Number of Serialized Cases	Number of Sites	Acres
Existing Withdrawals	31	73	7,303.4
Proposed Withdrawals	1	1	131.25

B. CRITERIA TO USE IN EVALUATION OF EXISTING AND PROPOSED WITHDRAWALS

1. Evaluation Criteria

a. Existing Withdrawals

(1) Is the land still being used for the purpose for which it was withdrawn.

(a) If yes, is the area withdrawn too small or too extensive?

(b) Have conditions changed so that the lands are more valuable for other uses? If no, then:

(2) Are there other ways available to protect the resource values (for instance, existing statutes and regulations, rights-of-way, cooperative agreements)? If no, then:

(3) Are the values at risk of such a nature that a significant financial, social, or cultural loss could occur?

(a) What is the monetary value of the physical improvements at risk?

(b) What is the current and project use demand?

(c) If the withdrawal is for a proposed development, have funds been allocated for this project?

(d) Is the resource unique and/or irreplaceable? If yes, then:

(4) Does the withdrawal area have a high mineral potential or are there nearby mining claims or mining activities? If yes, then:

(5) Initiation of withdrawal action recommended.

b. Proposed Withdrawals

Follow steps 2 through 5.

2. Processing Program and Review

a. Determination of need based on criteria section.

b. Process using requirements outlined in statutes and regulations.

(1) Section 204 of FLPMA (P.L. 94-579)
(2) 43 CFR 2310

c. Review of existing withdrawals must be completed by October 21, 1991. A review of existing and future withdrawals will again occur with the programmed revisions of the Lolo Forest Plan.

APPENDIX I

Guidelines for Landownership Adjustments

Landownership adjustment decisions, like all others, must be based upon the resources present on the lands involved. The Northern Regional Guide provides overall direction for land adjustments. The following guidelines will outline policy for developing a landownership adjustment map which will be the basis for all ownership adjustments. This map is not reproduced in this document due to its complexity and the resulting problems with representing what is proposed; however, this map is available at the Forest Supervisor's office for review by all interested persons.

These guidelines do not constitute a decision to make changes in landownership but rather present the parameters under which an adjustment may occur. Once a case is proposed, it must follow specific requirements of the law, regulation, and policy. Important requirements for exchanges include notification of the County Commissioners, State Agencies, Congressional Delegation, publication in a newspaper with general circulation on 4 consecutive weeks, and the preparation of an environmental analysis which includes consideration for threatened and endangered species, flood plains, wetlands, cultural resource characteristics, mineral values, economics, etc. If all these factors still indicate a favorable circumstance, then the properties are appraised to insure that the United States receives proper value in return for the land and/or money that it gives up in the transaction.

General Guidelines for Landownership Adjustments

1. Tracts of land that best provide for public benefits through government ownership will not normally be disposed of to private ownership. There may be cases where an important resource could be released, i.e., an isolated tract that has important winter range values but is not in a manageable situation or when non-Federal land with greater area or higher quality key resource is offered in exchange.

2. Acquisition will be directed towards those private lands which complement the resource management goals identified in the Forest Plan and not solely for the purpose of improving the private landowner's or the Forest Service's management efficiency.

3. Accept checkerboard landownership other than in situations where analysis indicates an ownership change will provide a greater net public benefit.

4. Landownership adjustments will concentrate on land exchanges; however, if funds become available, properties may be purchased within approved Recreation Composites.

5. Occasionally, landowners offer to donate land or interests in land to the United States. These properties may be accepted if they meet the criteria for acquisition outlined herein.

Acquisition Guidelines

1. Direction is to acquire all non-Federal land within the boundaries of established wilderness areas.

2. Acquire all non-Federal lands within other congressionally and administratively designated areas necessary to preserve or enhance the values which dictated the classification. This may require the acquisition of checkerboard lands.

3. Acquire isolated parcels or interests in isolated parcels háving specific resources complimenting National Forest management.

Disposal Guidelines

1. Dispose of isolated parcels that are uneconomical to manage, with no important resources or where further consolidation is not anticipated.

2. Lands adjacent to permanent communities may be disposed of if a recognized need for land to expand the area of the community exists.

3. Recognizing that we must identify lands for disposal that will allow acquisition of important non-Federal lands, irregular boundary tracts up to one section may be exchanged with no net reduction of important public resources.

4. National Forest System land intermingled with large corporate lands in a checkerboard pattern will not be disposed of if analysis shows that consolidation would result in:

    a. Substantial additional costs to local governments for social or public services.

    b. A significant adverse effect on the use or protection of adjacent public land.

    c. A significant adverse social or economic effect on the local community.

    d. A significant increase in the cost of planned public projects.

    e. A significant loss of capital investments of the United States.

    f. A significant loss of total National Forest System acreage classified as available and capable of timber production.

5. Federal lands should not be identified for exchange:

    a. If they provide a specific public need.

    b. If they would affect established Forest Service management plans or balance of resources.

    c. If they could result in private control of important watershed lands.

APPENDIX J

Guidelines for Issuance and Administration of Special Use Permits

1. Allow on National Forest System lands only uses which are consistent with the overall Forest Service objectives that cannot be served by development on private land.

2. To determine if a request can be approved, an environmental assessment or environmental impact statement will be required, except where existing approved site plans and Environmental Assessments have been prepared; i.e., electronic sites. Applicants will provide complete and detailed plans for evaluation in the NEPA process. As a note for complex situations; e.g., electronic sites, the environmental assessment will analyze in other existing or potential sites, will project future uses, and have an approved site plan. Preliminary and final surveying and staking will be done by the applicant. Cost reimbursement may be required for major Forest Service involvement in the construction or maintenance phases; e.g., full-time coordinator or inspector on a major power transmission line.

3. Specific Uses:

   a. Access. Access by road permits, road use permits, USDA easements, or existing memorandum of understanding are covered in the Regional Land Access Policy, FSM 2703, Region One Supplement No. 100.

   b. Subdivisions. District Rangers will work closely with city/county planning and zoning organizations where they exist. Early input into development plans may be needed for potential problem areas such as: access (Government and private), garbage disposal, utilities, water systems, sewage disposal, TV and/or radio antennas, boundary line accuracy, fencing, convenants, visual problems, confining developments to private land, impacts on National Forest System lands in location of parks and open spaces, and gravel and topsoil needs. Subsequent splitting of tracts may compound use implications.

      As subdivisions develop, requests for individual use will be discouraged in favor of group or community requests. Initial individual permits will be phased out and incorporated in community permits.

   c. Subdivision Roads. Interior subdivision roads will rarely be allowed on National Forest System lands, particularly when existing subdivision tracts are subdivided again.

      Roads, including those on National Forest System land, should be dedicated to the county.

   d. Power Lines. Distribution lines and service drops will be buried when possible. Exception for service and distribution may be made in cases of intermingled land, where lines cross a small corner of National Forest System land, or where burying lines may cause excessive environmental impacts; e.g., in swampy areas.

Minimum specifications for burying in roads are contained in the National Electric Codes and local addendums to the Code.

Primary transmission lines 33 kV and larger have separate problems. See major facilities section.

e. Telephone Lines. All new and replacement lines will be buried. Minimum specifications - see Power Lines for details.

f. Water Systems. National Forest System lands will be considered as a water source when it is not possible to obtain water on private land. Community or group requests will be encouraged whenever a future need is recognized. Energy conservation measures (e.g., gravity system versus electric pump) should be considered during the feasibility analysis for such requests.

g. Sewer System. Will be located on private lands. In rare cases, we may consider a community system for larger populations.

h. Garbage Disposal. At the present time, we will not allow this use because need can be met on private land. In the future, because of energy conservation needs, this position may have to be reconsidered.

i. TV or Radio Antennas. Do not allow a series of separate antenna systems for a subdivision.

j. Electronic Sites. Policy is to minimize the number of sites. Group uses where possible, and minimize the number and size of structures.

k. Occasional Events. From time to time, we receive requests for cross-country ski or snowmobile races, youth or church organization camps, recreation trails, and others. Handle such requests on a case-by-case basis. Do not allow permanent structural facilities to be built, or permit use where unacceptable resource damage could occur. Consider building trails if they will also serve National Forest objectives. Speed races involving motorcycles or horses do cause damage and will not be allowed.

l. Commercial Recreation Developments. Handle these on a case-by-case basis. A strong showing of need and public service are key considerations. Manual directions cover planning details.

m. Pasture Permits. Will not be issued for horses, cattle, or other livestock uses for private recreation. Where conditions allow, pasture permits will be considered where use is in conjunction with an established agricultural operation.

n. Gravel Permits. Where possible, confine use to existing pits. Heavy use may require controls on use either by Forest Service administration or by private permittees who have a permit to sell gravel. If commercial sources are nearby, do not issue a permit that may be in competition with private sources. In developing new pits, consider all potential uses and controls needed at the pit such as fences, gates, and site rehabilitation.

o. Topsoil. Topsoil removal will not be a permitted use.

p. Major Facilities. Land use grant poilicies are difficult to prepare for major facilities such as interstate and State highway systems, pipe lines, power transmission, and microwave sites. Rely on land use planning procedures and project planning.

q. Occupancy Trespass. The policy basically is to remove all nonconforming uses. Flagrant trespass will be discontinued as rapidly as possible. Innocent trespass of long standing may be handled by special-use permit. Moveable items such as some cabins or fences will be phased out over a maximum period of 5 years. The difficulty of moving will have a bearing on the phase-out period. Where the item is not reasonably moveable, long-term or life tenure will be considered.

APPENDIX M

Mineral Potential, Exploration, and Development

ACTIVE MINERAL OPERATIONS

Property Name	Operator	Location	Commodity
Nugget Claims	Eddy Peak Mining Co.	T16N, R23W s. 23	Gold-Placers
Lubelle Claim	Clay Lewis	T17N, R24W s. 21	Gold-Placers
Keystone Mine	Silver Lite Mining Corp.	T18N, R26W s. 27,34	Gold-Silver-Lode
Nancy Lee Mine	Nancy Lee Mining Co.	T18N, R26W s. 31	Silver-Lode
Calumet Placer	Pete Balison	T15N, R25W s. 31	Gold Placer
USA Property	U.S. Antimony Corp.	T21N, R31W s. 19-30, 29-30	Antimony-Lode
Ward Lode	Ward Development Co.	T11N, R22W s. 21	Copper, Gold, Silver-Lode

SUMMARY OF OUTSTANDING OR RESERVED MINERAL RIGHTS

Private Minerals, Federal Surface Ownership	Acres
All minerals reserved by private	29,338.69
6 1/4% of all minerals reserved by private	80.00
Coal outstanding to private	160.00
All minerals reserved by State of Montana	80.00
All minerals including coal, iron, gas and oil, but not including uranium, thorium, and other fissionable material, reserved by private	31,330.84
TOTAL	60,989.53

Private Surface, Federal Minerals Ownership	
All minerals reserved by U.S.	54.00
All coal reserved by U.S.	40.00
All uranium, thorium or any other material essential to production of fissionable material reserved by U.S.	12,213.37
TOTAL	12,307.37

SUMMARY OF MINERAL POTENTIAL

Mineral Potential Rating	Numerical Rating	Forest-Wide Acres
Very High	10, 9	105,023
High	8, 7, 6	514,328
Moderate	5, 4, 3	1,035,869
Low	2, 1	405,525
Unknown	--	2,160

10 = Highest
1 = Lowest
99 = Insufficient data upon which to base an evaluation; unknown; not synonymous with low.

10 - Area contains any one of the following proven reserves/resources (after USGS McKelvey diagram):

a. Measured, indicated, or inferred economic reserves delineated.
b. Measured, indicated, or inferred paramarginal resources delineated.
c. Measured, indicated, or inferred submarginal resources delineated.
d. Hypothetical economic reserves delineated.

9 - Areas with favorable geology and structure and mineral occurrence(s) and supporting geochemical and geophysical data; may or may not have known assay values.

8 - Areas with favorable geology and/or structure and supporting geochemical data; may or may not have mineral occurrence(s); may or may not have known assay values.

7 - Areas with favorable geology and/or structure and supporting geophysical data; may or may not have mineral occurrence(s); may or may not have known assay values.

6 - Areas with favorable geology and/or structure and mineral occurrences and known assay values.

5 - Areas with favorable geology and/or structure and mineral occurrence(s), or; geophysical or geochemical anomalies where geology and/or structure does not clearly favor mineralization; anomaly of unknown significance.

4 - Areas with favorable geology and/or structure.

3 - Areas with mineral occurrence(s), where geology and/or structure is not well known.

2 - Areas with possibly favorable geology and/or structure (extrapolation of data).

1 - Areas with unfavorable geology and/or structure.

RELATIONSHIPS WITH OTHER RESOURCE ELEMENTS

Minerals activities are initiated by the minerals industry under rights guaranteed by the 1872 Mining Law or under the Mineral Leasing Act of 1920, as amended, and not by the Forest Service. Hence, any allocation of land by the Forest Service to a use not compatible with mining activities would be less than optimum. Allocations that reduce or limit the opportunity for mineral activities would result in the highest risk of conflicts to the Forest Plan. Some of these allocations might be:

1. Areas allocated to roadless (including roadless management areas and wilderness) whereby a lack of or reduced access might inhibit prospecting and exploration activities.
2. Areas restricted so that access would be difficult to obtain or hampered (e.g., areas of closed roads).
3. Areas where mining would not be allowed or areas where mitigation of the effects of mining might appear to be impossible, according to the Forest Plan (e.g., wilderness).
4. Areas where alternative mining operations might be difficult or expensive (e.g., riparian zones, calving areas, winter range, visual).

In general, the most desirable situation would be where the least amount of roadless acreage would be allocated in areas with the highest mineral potential.

Slope will influence the cost of operations. The steeper the slopes, the more difficult and costly to mitigate the mineral activities in order to safeguard the environment.

Mineral Potential	Slope Class		
	0-40%	41-60%	>60%
	Acres		
Very High	17,495	59,099	28,429
High	173,620	281,685	59,023
Moderate	382,573	497,012	156,284
Low	110,669	224,358	70,498

APPENDIX N

Procedures to Implement the Forest's Snag Standard (#28)

Assumptions/Givens Used in Developing Prescriptions

1. The Forest was segregated into four vegetative zones including moderately warm and dry Douglas-fir/ponderosa (Habitat Group 2); moderately cool and dry Douglas-fir (Habitat Group 3); moist midelevation spruce, grand fir zones (Habitat Group 4); and cold and dry subalpine fir zones (Habitat Group 5).

2. Only habitat for primary excavators (woodpeckers) is provided for in the prescriptions. The needs of secondary excavators (tree swallows, nuthatches, etc.) will be provided by cavities created by primary excavators.

3. Primary excavators (woodpeckers) by vegetative class include:

   Moderately Warm & Dry
   Douglas-fir/Ponderosa

   - *Pileated
   - Hairy
   - Flicker
   - Downy

   Moderately Cool & Dry
   Douglas-fir

   - *Pileated
   - Hairy
   - Flicker
   - Williamson's

   Moist Midelevation Spruce/GF

   - *Pileated
   - Hairy
   - Flicker
   - Williamson's
   - Black-backed, Three-toed

   Cold and Dry Subalpine

   - *Flicker
   - Northern Three-toed
   - Black-backed, Three-toed

   *It should be emphasized that there are many cavity users in each vegetative class. These are only the primary excavators that would be most dependent on this vegetative community. Species occurring occasionally were not considered.

4. No allowance for Lewis woodpeckers and yellow-bellied sapsuckers is made due to their occurrence outside the regulated component, i.e., most nesting habitat occurs in cottonwood zones where little conflict exits.

5. All species except the pileated can exist on very small snags (12 inches d.b.h. and 15 feet tall as minimum). Because of the rapid recruitment of these small snags in a managed Forest, no allowance need be made for

continuity; i.e., there's no need for retaining live tree replacements to provide for small snag continuity.

6. Pileated woodpeckers require large snags (i.e., 20 inches d.b.h. and 40 feet tall as a minimum). The "lifespan" of big snags after final removal harvest averages 30 years. Ne 20-inch snags will not be available for an average of 120 years after regeneration. Thus, there's a need to provide for replacement snags to span this 90-year gap. Assuming that each live replacement would stand 30 years after dying, we'd need three replacements for each big snag.

Table 1 displays snag retention prescriptions based on the Forest policy of managing snag users at 80 percent of biological potential on areas away from roads (Forest Policy No. 12).

Table 1: Snag Retention Prescriptions

	Moderately Warm and Dry DF/Ponderosa Habitat Group 2	Moderately Cool and Dry Douglas-fir/Huckleberry Pinegrass Habitat Group 2	Moist Midelevation Spruce/Grand Fir Habitat Group 4	Cold and Dry Subalpine Fir Habitat Group 5
Total hard snags needed/ac. (min. size 10" d.b.h., 15' tall)	4.0	3.0	3.5	1.0
No. of big snags needed (20" d.b.h., 40' tall-included im amount)	.1 (1/10 ac.)	.1 (1/10 ac.)	.1 (1/10 ac.)	None
Amount dead and down needed/ac. (min. size 6" dia., 8' long)	8-10 tons	10-15 tons	12-20 tons	--
No. of live replacements needed/ac.	.3 (3/10 ac. or 1/3 ac.)	.3 (3/10 ac. or 1/3 ac)	.3 (3/10 ac. or 1/3 ac.)	--
No. of soft "stubs" needed/ac.	All additional available	All available	All available	All available

Definitions

Hard snag - sound, potentially merchantable
Stub - soft brokentop, obviously rotten, crumbly
Replacement - live, older tree, preferably brokentop

In General Leave the Following:

--Big snags over small snags
--Brokentop over intact top
--Cull over merchantable trees
--Live culls over dead merchantable trees
--Larch over ponderosa over Douglas-fir over all other species diseased over healthy

APPENDIX Q

PRIORITY FOR OBTAINING INSTREAM FLOW RIGHTS
High Ratings

Reach Name	Dist.	Length	Tributary To	* FRV	** SL	Permits
Sixmile Creek	16-04	?	Clark Fork	2	1	1
Clark Fork	16-03	23	Pend Oreille R.	1	1	0
Rock Creek	16-03	47	Clark Fork	1	1	0
Clark Fork	16-03	99	Pend Oreille R.	1	1	0
Clark Fork	16-07	76	Pend Oreille R.	1	1	0
W. Fk. Fish Creek	16-04	20	Fish Creek	2	1	0
Twelvemile Creek	16-07	17	St. Regis River	2	2	0
St. Regis River	16-07	53	Clark Fork	2	1	0
Indian Creek	16-04	3	W. Fk. Fish Creek	2	2	0
Fish Creek	16-04	23	Clark Fork	2	1	0
Placid Creek	16-06	13	Owl Creek	2	1	0
Owl	16-06	5	Clearwater River	2	2	0
Morrell Creek	16-06	19	Cleakwater River	2	1	0
Clearwater River	16-06	27	Blackfoot River	2	1	0
Blackfoot River	16-03	52	Clark Fork River	2	1	0
Lolo Creek	16-03	45	Bitteroot River	2	1	0
Thompson River	16-05	43	Clark Fork River	2	1	0
Thompson River	16-08	8	Clark Fork River	2	1	0
Butler Creek	16-04	14	Ninemile Creek	4	3	1
Spring Creek	16-03	7	Rock Creek	4	2	1
Spring Creek	16-03	2	Rock Creek	4	2	1
Dry Creek	16-07	10	Clark Fork	4	1	2
Deep Creek	16-07	10	Clark Fork	4	1	1
Second Creek	16-07	5	Clark Fork	4	0	2
Deep Creek	16-08	8	Clark Fork	4	2	3

* Fisheries Resource Value (FRV)
** Sensitivity Level (SL)

Moderate Ratings

Reach Name	Dist.	Length	Tributary To	FRV	SL	Permits
Sparks	16-04	2	Ninemile	3	3	0
S. Fk. Fish Creek	16-04	15	Fish Creek	3	1	0
Petty Creek	16-04	18	Clark Fork	3	1	0
N. Fk. Fish Creek	16-04	16	Fish Creek	3	1	0
Ninemile	16-04	39	Clark Fork	3	1	0
Little Joe Creek	16-07	3	St. Regis River	3	1	0
Gilbert Creek	16-03	2	Rock Creek	3	2	0
Hogback Creek	16-03	5	Rock Creek	3	2	0
Rattlesnake Creek	16-03	32	Clark Fork	3	1	0
Ranch Creek	16-03	15	Rock Creek	3	1	0
Welcome Creek	16-03	5	Rock Creek	3	1	0
Devils Creek	16-04	5	Ninemile Creek	3	3	0

Cedar Creek	16-07	24	Clark Fork	3	2	0
Cache Creek	16-04	20	S. Fk. Fish	3	2	0
McDermott Creek	16-06	3	Cooper's Lake	3	1	0
Gold Creek	16-03	17	Blackfoot River	3	1	0
Cottonwood Creek	16-06	19	Blackfoot River	3	2	0
Colt Creek	16-06	7	Clearwater River	3	2	0
Clearwater River	16-06	9	Blackfoot River	3	1	0
Belmont Creek	16-06	12	Blackfoot River	3	3	0
W. Fk Thompson R.	16-08	12	Thompson River	3	2	0
Graves Creek	16-08	12	Clark Fork River	3	2	0
Fishtrap Creek	16-08	23	Thompson River	3	1	0
Bear Creek	16-05	6	Thompson River	3	3	0
E. Fk. Petty Creek	16-05	10	Petty Creek	6	2	1
Crow Creek	16-08	1	Prospect	6	2	1
Big Spring Creek	16-03	8	Rock Creek	4	2	0
Alder Creek	16-03	9	Rock Creek	4	2	0
W. Fk. Big Creek	16-07	1	Big Creek	4	2	0
Ward Creek	16-07	11	St. Regis River	4	1	0
Trout Creek	16-07	22	Clark Fork River	4	1	0
Straight Creek	16-04	9	Fish Creek	4	1	0
S. Fk Little Joe	16-07	8	Little JoE Creek	4	1	0
Silver Creek	16-07	6	St. Regis River	4	2	0
Savenac Creek	16-07	4	St. Regis River	4	2	0
Randolf Creek	16-07	3	St. Regis River	4	2	0
N. Fk. Little Joe	16-07	9	Little Joe Creek	4	1	0
Monture Creek	16-04	8	Cache Creek	4	2	0
Flat Creek	16-07	9	Clark Fork	4	2	0
Cinnimon Bear	16-03	5	Rock Creek	4	2	0
Butte Cabin Creek	16-03	7	Rock Creek	4	2	0
Brewster Creek	16-03	5	Rock Creek	4	2	0
Deer Creek	16-03	3	Clark Fork River	4	2	0
Crystal Creek	16-03	4	Clark Fork River	4	2	0
Grant Creek	16-03	16	Clark Fork River	4	1	0
Greenough Creek	16-03	7	Clark Fork River	4	2	0
Lake Creek	16-03	3	Rattlesnake Creek	4	1	0
S. Fk. Gilbert Cr.	16-03	4	Gilbert Creek	4	2	0
Schwartz Creek	16-03	5	Clark Fork River	4	2	0
Sawmill Creek	16-03	5	Rock Creek	4	2	0
Wyman Creek	16-03	11	Rock Creek	4	2	0
Wrangle Creek	16-03	5	Rattlesnake Creek	4	2	0
E. Fk. Big Creek	16-07	2	Big Creek	4	2	0
Deep Creek	16-03	4	Clark Fork River	4	2	0
Deep Creek	16-03	1	Clark Fork River	4	2	0
Deep Creek	16-07	7	Clark Fork River	4	2	0
Ceadar Log Creek	16-04	16	W. Fk. Fish Creek	4	2	0
Big Creek	16-07	6	St. Regis River	4	2	0
Bear Creek	16-04	6	Mill Creek	4	2	0
W Fk. Clearwater R	16-06	20	Clearwater River	4	2	0
N. Fk. Blackfoot R	16-06	42	Blackfoot River	4	1	0
Monture Creek	16-06	36	Blackfoot River	4	1	0
Cold Creek	16-03	10	Blackfoot River	4	1	0
Finley Creek	16-06	5	Placid Creek	4	2	0
Deer Creek	16-06	10	Seeley Lake	4	2	0
Boles Creek	16-06	9	Placid Creek	4	2	0

W. Fk. Lolo Creek	16-03	8	Lolo Creek	4	1	0
W. Fk. Butte Creek	16-03	9	S. Fk. Lolo Creek	4	2	0
O'Brian Creek	16-03	14	Bitteroot River	4	2	0
N. Fk. Granite Ck	16-03	5	Granite Creek	4	2	0
Miller Creek	16-03	12	Bitteroot River	4	1	0
Mill Creek	16-03	4	Lolo Creek	4	2	0
S. Fk. Lolo Creek	16-03	18	Lolo Creek	4	1	0
Williams Gulch Cr.	16-03	5	Rock Creek	4	2	0
Lost Park Creek	16-03	5	E. Fk. Lolo Creek	4	1	0
Lee Creek	16-03	4	W. Fk. Lolo Creek	4	1	0
Howard Creek	16-03	19	Lolo Creek	4	2	0
Granite Creek	16-03	12	Lolo Creek	4	2	0
E. Fk. Lolo Creek	16-03	11	Lolo Creek	4	1	0
Bear Creek	16-03	6	Lolo Creek	4	2	0
Bear Creek	16-03	2	Lolo Creek	4	2	0
Weeksville Creek	16-08	9	Clark Fork River	4	2	0
W Fk. Fishtrap Cr	16-08	8	Thompson River	4	2	0
Prospect Creek	16-08	27	Clark Fork River	4	1	0
Murr Creek	16-05	7	Thompson River	4	2	0
N. Fk. Murr Creek	16-05	4	Murr Creek	4	2	0
Jungle Creek	16-08	6	Fishtrap Creek	4	2	0
Little Thompson R.	16-05	23	Thompson River	4	1	0
Clear Creek	16-08	16	Prospect Creek	4	2	0
Cherry Creek	16-08	17	Clark Fork River	4	2	0
Chippy Creek	16-05	8	Thompson River	4	1	0
Big Rock Creek	16-05	11	Thompson River	4	1	0
Beatrice Creek	16-08	6	Fishtrap Creek	4	2	0
Grizzly Creek	16-03	5	Ranch Creek	4	2	0

Low Ratings

Reach Name	Dist.	Length	Tributary To	FRV	SL	Per-mits
Allen Creek	16-03	6	Clark Fork River	4	3	0
Stony Creek	16-04	8	Ninemile Creek	4	3	0
S. Fk. White Creek	16-04	4	White Creek	4	3	0
Soldier Creek	16-04	6	Ninemile Creek	4	3	0
Rock Creek	16-04	16	Clark Fork River	4	3	0
Printer Creek	16-04	5	Petty Creek	4	3	0
Pine Creek	16-04	6	Ninemile	4	3	0
Nemote Creek	16-04	5	Clark Fork River	4	3	0
McFarland Creek	16-04	5	Quartz Creek	4	3	0
Marion Creek	16-04	7	Ninemile Creek	4	3	0
Gus Creek	16-04	6	Petty Creek	4	3	0
First Creek	16-07	5	Clark Fork River	4	3	0
Cougar Creek	16-03	5	Rock Creek	4	3	0
Cramer Creek	16-03	14	Clark Fork River	4	3	0
Hutsinpiler Creek	16-03	4	Rock Creek	4	3	0
Moccasin Creek	16-03	3	Greenough Creek	4	3	0
Tyler Creek	16-03	9	Clark Fork River	4	3	0
Wahlquist Creek	16-03	5	Rock Creek	4	3	0
Eustache Creek	16-04	5	Ninemile Creek	4	3	0
Camp Creek	16-04	5	Ninemile Creek	4	3	0

Burnt Fk. Creek	16-04	6	Ninemile Creek	4	3	0
Bird Creek	16-04	4	Ninemile Creek	4	3	0
Bill Creek	16-04	7	Petty Creek	4	3	0
Big Blue Creek	16-04	6	Ninemile Creek	4	3	0
Beecher Creek	16-04	2	Ninemile Creek	4	3	0
Trail Creek	16-06	8	Clearwater River	4	3	0
Rock Creek	16-06	15	N. Fk. Blackfoot R.	4	3	0
Marshall Creek	16-06	6	W. Fk. Blackfoot R.	4	3	0
Blanchard Creek	16-06	19	Clearwater River	4	3	0
Plant Creek	16-03	3	Miller Creek	4	3	0
Mormon Creek	16-03	3	Lolo Creek	4	3	0
Marshall Creek	16-06	3	W. Fk Clearwater R.	4	3	0
Square Creek	16-08	1	Clark Fork River	4	3	0
Little RocK Creek	16-05	5	Little Thompson R.	4	3	0
White Creek	16-04	6	Cache Creek	6	0	0
Stark Creek	16-04	5	Ninemile Creek	6	0	0
Sixmile Creek	16-04	16	Clark Fork River	6	0	0
St. Louis Creek	16-04	5	Ninemile Creek	6	0	0
Rock Creek	16-04	9	Ninemile Creek	6	0	0
Pebble Creek	16-04	6	Cache Creek	6	0	0
Oliver Creek	16-04	1	Devil's Creek	6	0	0
Remick Creek	16-04	4	Ninemile Creek	6	0	0
Duff Creek	16-04	4	Ninemile Creek	6	0	0
Little Blue Creek	16-04	5	Ninemile Creek	6	0	0
Kennedy Creek	16-04	8	Ninemile Creek	6	0	0
Josephine Creek	16-04	7	Ninemile Creek	6	0	0
Free Creek	16-04	5	Ninemile Creek	6	0	0
Fire Creek	16-04	8	Ninemile Creek	6	0	0
French Gulch	16-04	3	Clark Fork River	6	0	0
Cedar Creek	16-04	4	Ninemile Creek	6	0	0